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How to Use This Index

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Papers catalogues alphabetically by title those JOURNAL papers covered by the specific area of the decimal heading under which these are listed. **Abstracts** lists alphabetically the titles of papers presented at meetings. **Subtitles** includes some subtitles from Papers whose titles do not fully describe all the areas covered therein; specially "devised" subtitles when such did not appear in the Paper itself; and some Figure captions. Thus, while the Subtitles portion of the Index is informal, it is hoped that it will increase the probability of finding the desired information quickly. **Patents** lists alphabetically the titles of all Patents as they have appeared in the JOURNAL.

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The reader, or his librarian, should go over the list of Errata (Section 0.1) and either make the indicated corrections in the original papers in the JOURNAL or enter a note alongside the title of the original paper itself: "See Erratum, Vol. *XX*, p. *xxx*.

The *References to Contemporary Papers on Acoustics* are identified in each issue of the JOURNAL where they appear by the same decimal numbers listed in the Classification of Subjects, and may be consulted for references in other journals than our own. In Volume 41, these references can be found beginning on pages 233, 729, and 1388.

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Maës, Guy. 3,284,760. Hydrophone members. **41:** 902—1967
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Beranek receives French medal. **41**: 1560—1967
Buchta, J. William, 1894–1966. R. B. Lindsay. **41**: 1379—1967
Denes, Peter, to head new department at Bell Telephone Laboratories. **41**: 1380—1967
Fletcher, Harvey, receives Founders Award. **41**: 720—1967
Harris, Guy Sellers, 1900–1966. **41**: 719—1967
Jones, R. Clark, appointed Research Fellow. **41**: 1560—1967
Lazan, Benjamin J., 1916–1966. Hary Himelblau and Alex Yorgiadis. **41**: 873—1967
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Meyer, Max F., 1874–1967. **41**: 1560—1967
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Pappas, Nicholas J., 1919–1967. **41**: 872—1967
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Shaw, Henry Southworth, 1884–1967. **41**: 1379—1967
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von Gierke receives Eric Liljencrantz Award—1966. **41**: 872—1967
Wood, George, appointed to new post. **41**: 1380—1967

1.7 Committee Activities

Request for information on 1967–1968 university courses in acoustics. John C. Johnson. **41**: 719—1967
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1.9 Regional Chapters

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2 ARCHITECTURAL ACOUSTICS

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Some graphical methods to speed-up routine acoustical calculations. I. L. Ver. **41**: 1590—1967

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Sound Control and Thermal Insulation of Buildings. Paul Dunham Close. (Reviewed by D. G. Stephenson and T. D. Northwood.) **41**: 891—1967

News

Code of ethics for acoustical consultants. **41**: 1560—1967

2.2 Auditorium Design. (See also 7.6.)

Patents

Portable sound shell. Harry J. Wenger. **41**: 892—1967

2.3 Studies of Existing Auditoria and Acoustic Enclosures

Papers

Acoustics of school-band rehearsal rooms. Nelson G. Patrick and Charles R. Boner. **41**: 215—1967

Abstracts

Acoustics of rooms for classical recordings. L. L. Beranek and T. J. Schultz. **41**: 1597—1967
Approach to recreating a sound field. Marvin Camras. **41**: 1590—1967
Impulsive noises in restaurants. A. S. Harris and B. G. Watters. **41**: 1590—1967
On the quality of reverberation. R. S. Shankland. **41**: 1590—1967
Use of selective equalization for feedback suppression. C. P. Boner. **41**: 1597—1967

2.4 Sound Absorption: Theory and Methods of Measurement of. (See also 2.5.)

Papers

Angular distribution of lower room modes. R. J. Donato. **41**: 1496—1967

2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustic Impedances

Papers

External surface-absorption cross section of a pipe organ. A. H. Benade. **41**: 32—1967

Technical Notes and Research Briefs

Absorption of sound in liquids by porous metals. R. M. Fand, C. M. Gogos, and F. J. Jackson. **41**: 530—1967

Patents

Acoustical ceiling construction. George C. Adams. **41**: 545—1967

Acoustical panel. William A. Jack and George W. Constantin. **41**: 546—1967

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Damped-resonatory acoustical panels. Bruce T. Hulse and Milton W. Jeter. **41**: 545—1967

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2.7 Reverberation and Echoes. (See also 2.3, 2.4, 2.8, 2.9, 2.10, 11.2, 11.4, and 11.7.). Normal Modes in Rooms. Diffusivity. Frequency Response. Subjective Effects

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Abstracts

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New facilities for transmission-loss measurement on massive materials. William Siekman. **41**: 1589—1967

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2.8 Reverberation-Measuring Instruments. (See also 2.7 and 5.15.)

Abstracts

Study of sound decay using ray-tracing techniques on a digital computer. B. S. Atal and M. R. Schroeder. **41**: 1598—1967

2.9 Sound Transmission through Walls, Theory and Methods of Measurement of. (See also 2.10.)

Papers

Impact-noise rating of various floors. T. Mariner and H. W. W. Hehmann. **41**: 206—1967

Abstracts

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New facilities for transmission-loss measurement on massive materials. William Siekman. **41**: 1589—1967

2.10 Sound-Insulating Structures. Values of Transmission Coefficients. (See also 7.6.)

Papers

Impact-noise rating of various floors. T. Mariner and H. W. W. Hehmann. **41**: 206—1967

Abstracts

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Patents

Acoustic panels. Stephen Lighter. **41**: 893—1967

2.14 Sound-Reinforcement Systems for Rooms

Abstracts

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Use of selective equalization for feedback suppression. C. P. Boner. **41**: 1597—1967

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Discharge Patterns of Single Fibers in the Cat's Auditory Nerve. Nelson Yuan-Sheng Kiang, with the assistance of T. Watanabe, E. C. Thomas, and L. F. Clark. (Reviewed by Hallowell Davis.) **41**: 231—1967

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4 PHYSIOLOGICAL AND PSYCHOLOGICAL ACOUSTICS

4.1 **General, Unclassified**

Letters to the Editor

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4.2 **Anatomy and Physiology of the Ear**

Papers

Auditory nonlinearity. J. L. Goldstein. **41**: 676—1967
Dynamic response of middle-ear structures. H. Fischler, E. H. Frei, D. Spira, and M. Rubinstein. **41**: 1220—1967

Abstracts

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Auditory sensitivity of the Mongolian gerbil (*Meriones unguiculatus*). Alfred Finck. **41**: 1579—1967
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4.2.1 **Middle-Ear Mechanics**

Papers

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Abstracts

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4.2.2 Cochlear Mechanics

Papers

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Ultrastructure of the basilar papilla in the bullfrog. Lawrence S. Frishkopf and Åke Flock. **41**: 1578—1967

4.2.3 Models of the Ear

Papers

Stimulus-oriented approach to detection re-examined. Lloyd A. Jeffress. **41**: 480—1967

Abstracts

Computer simulation of spatial firing pattern of 8th nerve fibers—a preliminary study. Shyam M. Khanna, Richard E. Sears, and Juergen Tonndorf. **41**: 1584—1967

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4.2.4 Cochlear Electrophysiology

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4.3 Binaural Hearing. Localization

Papers

Accumulation theory of binaural-masked thresholds. K. D. Schenkel. **41**: 20—1967

Critical band in binaural detection, B. E. Mulligan, M. J. Mulligan, and J. F. Stonecypher. **41**: 7—1967

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4.4 Deafness. (See also 5.5.)

Papers

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Papers

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4.5 Instruments Relating to Hearing and for the Testing of Hearing. (See also 5.5.)

Papers

Effects of vibrator types and their placement on bone-conduction threshold measurements. Peter B. Weston, Roy W. Gengel, and Ira J. Hirsh. **41**: 788—1967

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Underwater hearing thresholds. John F. Brandt, Harry Hollien, and Carl Thompson. 41: 1603—1967

4.7 Masking. (See also 5.5.)

Papers

Accumulation theory of binaural-masked thresholds. K. D. Schenkel. 41: 20—1967
Additivity of masking. David M. Green. 41: 1517—1967
Critical band in binaural detection. B. E. Mulligan, M. J. Mulligan, and J. F. Stonecypher. 41: 7—1967
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Abstracts

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Detectability of a monaural signal as a function of interaural-noise correlation. Terrence R. Dolan and Donald E. Robinson. 41: 1612—1967
Detection of increments and decrements in continuous white-noise background. S. R. Anderson. 41: 1611—1967
Detection of narrow-band noise as a function of the interaural correlation of both signal and masker. W. A. Wilbanks. 41: 1612—1967
Effects of intensity on critical bands for tonal stimuli as determined by band limiting. Walter T. Bourbon, Thomas R. Evans, and Bruce H. Deatherage. 41: 1592—1967
Implications of a hypothetical, varying threshold for models of binaural masking. Ervin R. Hafter and Terrence R. Dolan. 41: 1612—1967
Loudness functions transformed by inhibition. S. S. Stevens and Miguelina Guirao. 41: 1592—1967
Masking of tones before, during, and after brief silent periods in noise. Lois L. Elliott. 41: 1612—1967
ROC curves for multiple-signal levels in a detection task. Ann Tucker, Rand B. Evans, and Lloyd A. Jeffress. 41: 1611—1967

Transient overshoot in linear time-invariant systems. David M. Green. 41: 1611—1967

4.8 Phase Effects. (See also 4.3.)

Papers

Accumulation theory of binaural-masked thresholds. K. D. Schenkel. 41: 20—1967

Auditory spectral filtering and monaural phase perception. J. L. Goldstein. 41: 458—1967

Critical band in binaural detection. B. E. Mulligan, M. J. Mulligan, and J. F. Stonecypher. 41: 7—1967

Detection of an in-phase signal with and without uncertainty regarding the interaural phase of the masking noise. Dennis McFadden. 41: 778—1967

4.9 Pitch. Absolute Pitch

Papers

Auditory spectral filtering and monaural phase perception. J. L. Goldstein. 41: 458—1967

Cepstrum pitch determination. A. Michael Noll. 41: 293—1967

Frequency discrimination following exposure to noise. John F. Brandt. 41: 448—1967

Frequency discrimination in noise. G. Bruce Henning. 41: 774—1967

Pitch of complex tones. R. Plomp. 41: 1526—1967

Pitch of noise bands. Arnold M. Small, Jr., and Raymond G. Daniloff. 41: 506—1967

Pitch perception of pulse pairs with random repetition rate. Max E. McClellan and Arnold M. Small, Jr. 41: 690—1967

Letters to the Editor

Frequency discrimination as measured by AB and ABX procedures. Michael G. Saslow. 41: 220—1967

Abstracts

"Polyacusis" accompanying hearing loss. Edith L. R. Corliss, Edwin D. Burnett, and Harold F. Stimson. 41: 1604—1967

Some effects of cosine amplitude modulation on the pitch of tone bursts. Robert B. Mahaffey. 41: 1593—1967

STROL study of vocal-fold-area change as a function of pitch. Robert F. Coleman and Harry Hollien. 41: 1613—1967

4.10 Subjective Tones

Papers

Auditory nonlinearity. J. L. Goldstein. 41: 676—1967

Pitch of complex tones. R. Plomp. 41: 1526—1967

Pitch of noise bands. Arnold M. Small, Jr., and Raymond G. Daniloff. 41: 506—1967

Pitch perception of pulse pairs with random repetition rate. Max E. McClellan and Arnold M. Small, Jr. 41: 690—1967

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Auditory afterimages produced by low-pass, high-pass, and band-rejected noises. Newman Guttman and Robert C. Lummis. 41: 1592—1967

Combination tones and auditory nonlinearity. J. L. Goldstein. 41: 1603—1967

4.11 Theories of Hearing

Papers

Accumulation theory of binaural-masked thresholds. K. D. Schenkel. 41: 20—1967

Additivity of masking. David M. Green. 41: 1517—1967

Auditory spectral filtering and monaural phase perception. J. L. Goldstein. 41: 458—1967

Detection of an in-phase signal with and without uncertainty regarding the interaural phase of the masking noise. Dennis McFadden. 41: 778—1967

Effects of stimulus duration on the detection of sinusoids added to continuous pedestals. Barry Leshowitz and David H. Raab. 41: 489—1967

Frequency discrimination in noise. G. Bruce Henning. 41: 774—1967

Integration of the energy in repeated tone pulses by man and the goldfish. George C. Offutt. 41: 13—1967

Mechanistic aspects of hearing. Edith L. R. Corliss. 41: 1500—1967

PEST: Efficient estimates on probability functions. M. M. Taylor and C. Douglas Creelman. 41: 782—1967

Pitch of complex tones. R. Plomp. 41: 1526—1967

Pitch of noise bands. Arnold M. Small, Jr., and Raymond G. Daniloff. 41: 506—1967

Pitch perception of pulse pairs with random repetition rate. Max E. McClellan and Arnold M. Small, Jr. 41: 690—1967

Stimulus-oriented approach to detection re-examined. Lloyd A. Jeffress. 41: 480—1967

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Amplitude discrimination in noise. G. Bruce Henning and Sheila L. Bleiwas. 41: 1365—1967

Abstracts

Temporal summation in the hearing-impaired listener. H. N. Wright. 41: 1604—1967

4.13 Ear Acoustical Impedance

Papers

Dynamic response of middle-ear structures. H. Fischler, E. H. Frei, D. Spira, and M. Rubinstein 41: 1220—1967

Abstracts

Changes of middle-ear acoustic impedance resulting from contralateral noise, female and male subjects. Jon K. Shallop. 41: 1577—1967

4.14 Use of Ear Protectors, Earplugs

Letters to the Editor

Attenuation provided by fingers, palms, tragi, and V51R ear plugs. Howard H. Holland, Jr. 41: 1545—1967

Abstracts

Attenuation characteristics of earmuffs at low audio and infrasonic frequencies. Harald K. Hille, Charles W. Nixon, and L. Keith Kettler. 41: 1602—1967

4.15 Perception of Signals

Papers

Additivity of masking. David M. Green. **41**: 1517—1967

Critical band in binaural detection. B. E. Mulligan, M. J. Mulligan, and J. F. Stonecypher. **41**: 7—1967

Detection of an in-phase signal with and without uncertainty regarding the interaural phase of the masking noise. Dennis McFadden. **41**: 778—1967

Effects of stimulus duration on the detection of sinusoids added to continuous pedestals. Barry Leshowitz and David H. Raab. **41**: 489—1967

Interaction of the auditory and visual sensory modalities. A. E. Brown and H. K. Hopkins. **41**: 1—1967

Masking of white noise by pure tone, frequency-modulated tone, and narrow-band noise. I. M. Young and C. H. Wenner. **41**: 700—1967

More on the detection of one of *M* orthogonal signals. L. W. Nolte and David Jaarsma. **41**: 497—1967

Perturbations of synthetic orchestral wind-instrument tones. William Strong and Melville Clark, Jr. **41**: 277—1967

PEST: Efficient estimates on probability functions. M. M. Taylor and C. Douglas Creelman. **41**: 782—1967

Pitch of noise bands. Arnold M. Small, Jr., and Raymond G. Daniloff. **41**: 506—1967

Stimulus-oriented approach to detection re-examined. Lloyd A. Jeffress. **41**: 480—1967

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Abstracts

Comparison of lateral localization and distance estimation for single- and multiple-source speech signals. Mark B. Gardner. **41**: 1592—1967

Detectability of a monaural signal as a function of interaural-noise correlation. Terrence R. Dolan and Donald E. Robinson. **41**: 1612—1967

Detection of increments and decrements in continuous white-noise background. S. R. Anderson. **41**: 1611—1967

Detection of a narrow-band noise as a function of the interaural correlation of both signal and masker. W. A. Wilbanks. **41**: 1612—1967

Effect of auditory-cortex ablation upon discrimination in the monkey. D. N. Elliott and L. A. Frazier. **41**: 1593—1967

Effect of relevant cues on binaural listening. John D. Durrant and Jon K. Shallop. **41**: 1613—1967

Effects of intensity on critical bands for tonal stimuli as determined by band limiting. Walter T. Bourbon, Thomas R. Evans, and Bruce H. Deatherage. **41**: 1592—1967

In-head localization of acoustic images. F. E. Toole. **41**: 1592—1967

Masking of tones before, during, and after brief silent periods in noise. Lois L. Elliott. **41**: 1612—1967

ROC curves for multiple-signal levels in a detection task. Ann Tucker, Rand B. Evans, and Lloyd A. Jeffress. **41**: 1611—1967

Time uncertainty in 2AFC and 4AFC experiments. Dana B. Main, Wilson P. Tanner, Jr., and Laurence Rivette. **41**: 1611—1967

Transient overshoot in linear time-invariant systems. David M. Green. **41**: 1611—1967

4.16 Vibration and Tactile Senses

Papers

Effects of vibrator types and their placement on bone-conduction threshold measurements. Peter B. Weston, Roy W. Gengel, and Ira J. Hirsh. **41**: 788—1967

Abstracts

Unconditioned galvanic skin-response magnitude as an index of frequency-intensity relationships in the hearing of the mouse. Alan J. Gill and Charles I. Berlin. **41**: 1593—1967

5 ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t.)

5.1 General, Unclassified

Letters to the Editor

Brief comment on the hydraulic analogy of an acoustic wave in a pipe. L. P. Solomon and Elizabeth Cuadra. **41**: 1548—1967

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Sound monitors steel making. **41**: 1557—1967

Patents

Audio accumulator. Donald E. Hansen. **41**: 1408—1967

Sound making device. Marvin I. Glass, Burton C. Meyer, and Jerome L. Pinster. **41**: 753—1967

Sound producer. Vincent S. Borsattino, Chursel E. Marker, and Harold L. Morris. **41**: 1567—1967

Stethoscope. David Littmann. **41**: 893—1967

Stethoscope ear tube mounting. Irving A. Speelman. **41**: 753—1967

5.2 Amplifiers and Attenuators

Abstracts

Extremely-low-noise preamplifier for audio frequencies. J. J. Truchard and J. E. Stockton. **41**: 1608—1967

5.3 Acoustic-Impedance Measurement. (See also 11.5 and 12.3z.)

Papers

Measurement of acoustic resistance at sound-pressure levels to 171 dB. P. A. Marino, Jr., N. Bohn, and G. D. Garrison. **41**: 1325—1967

5.4 Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)

Papers

Analysis of the excitation and detection of piezoelectric surface waves in quartz by means of surface electrodes. G. A. Coquin and H. F. Tiersten. **41**: 921—1967

Analysis of multiterminal piezoelectric plates. Richard Holland. **41**: 940—1967

Average control for sinusoidal- and random-vibration testing. Theron Usher, Jr. **41**: 840—1967
Bechmann's number for harmonic overtones of thickness/twist vibrations of rotated y-cut quartz plates. R. D. Mindlin. **41**: 969—1967
Electromechanical filter composed of transversely vibrating resonators for low frequencies. Masashi Konno, Chiharu Kusakabe, and Yoshirô Tomikawa. **41**: 953—1967
Free-flooding unidirectional resonators for deep-ocean transducers. R. E. Horita. **41**: 158—1967
Thickness/twist vibrations of a truncated, linearly tapered, crystal strip. C. B. Loutzenheiser and W. J. Denkmann. **41**: 962—1967
Transverse thickness modes in **BT**-cut quartz plates. W. J. Spencer. **41**: 994—1967
Trapped-energy modes in quartz filter crystals. W. Shockley, D. R. Curran, and D. J. Koneval. **41**: 981—1967
Useful formulas for piezoelectric ceramic resonators and their application to measurement of parameters. Morio Onoe and Hiromichi Jumonji. **41**: 974—1967

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Acoustic filter applications in large, liquid, rocket-engine-component test systems. L. R. Iwanicki, J. A. Nestlerode, and G. J. Bugler. **41**: 532—1967
New American standard for filters. **41**: 534—1967

Abstracts

Active end correction of pipes and resonators. S. A. Elder. **41**: 1609—1967
Passive end correction of pipes and resonators. S. A. Elder. **41**: 1609—1967
Response of a system of point transducers to turbulent boundary-layer pressure field. D. W. Jorgensen and G. Maidanik. **41**: 1616—1967
Transmission phenomena in slotted acoustic tube. Joseph Wood Rogers. **41**: 1615—1967

Patents

Compressional wave signaling apparatus. Dean W. Flygstad. **41**: 1567—1967
Dual electrostrictive drivers bonded to and driving opposite sides of mechanical resonator. Werner Poschenrieder. **41**: 893—1967
Fluid level measuring apparatus. Michael A. Ziniuk. **41**: 1408—1967
Piezoelectric oscillator having a high coupling factor. Hans Dietrich Bartels. **41**: 893—1967
Solid delay line. Paul A. Bauer. **41**: 262—1967
Supporting device for mechanical filter. Kazuo Kameya. **41**: 261—1967

5.5 Audiometers. (See also 4.4 and 4.5.)

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Audiometric screening of the newborn. Wayne Rudmose. **41**: 868—1967

Abstracts

Determination of hearing aid specifications for each instrument user. Herman G. Wallenfels. **41**: 1604—1967
Diver positioning response system (DPRS). C. L. Thompson and H. Hollien. **41**: 1603—1967
Resonance effects on human hearing threshold sensitivity. Diane Sklar Castle. **41**: 1602—1967
Underwater hearing thresholds. John F. Brandt, Harry Hollien, and Carl Thompson. **41**: 1603—1967

5.6 Broadcasting (Radio and Television)

Patents

Stereophonic signal transmission and reception system. Wilson P. Boothroyd and Edgar M. Creamer, Jr. **41**: 1567—1967

5.7 Ear Protectors and Earplugs. (See also 4.14.)

Letters to the Editor

Attenuation provided by fingers, palms, tragi, and V51R ear plugs. Howard H. Holland, Jr. **41**: 1545—1967

5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)

Papers

Free-flooding unidirectional resonators for deep-ocean transducers. R. E. Horita. **41**: 158—1967

Abstracts

Need for a new acoustic source. William H. Craft. **41**: 1615—1967
Tone generation by subsonic flow through sharp-edged circular nozzles. Hanno H. Heller. **41**: 1615—1967

Patents

Transducer. Harvey M. Rutter. **41**: 894—1967

5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

Letters to the Editor

Random efficiency of second-order gradient microphones. Benjamin B. Bauer. **41**: 1545—1967

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Phonocardiograph microphone is rugged and moistureproof. **41**: 870—1967

Abstracts

Acoustical problems associated with the use of microphones in an oxygen mask. George J. Sebesta, Arthur J. Mellen, Alan Hofer, and Richard W. Carlisle. **41**: 1616—1967
Application of a head-contact microphone to hands-free speech communication under hazardous conditions. George J. Sebesta, Arthur J. Mellen, and Alan Hofer. **41**: 1616—1967
Instrumentation and techniques for recording aircraft-flyover noise. Edgar L. Zwieback. **41**: 1609—1967
VLF adjustable acoustic band-pass filter microphone system. Bob R. Beavers and Norman J. Meyer. **41**: 1600—1967

Patents

Directional sound transmitter. Rudolf Görike and Bernhard Weingartner. **41**: 894—1967
Ear-insert microphone. Alan D. Bredon. **41**: 262—1967
Electroacoustic transducer. Elmer V. Carlson. **41**: 262—1967

Electro-acoustic transducer. William H. Lahti. 41: 262—1967
Handle microphone. Ernst Pless. 41: 1567—1967
Microphone for magnetic recording device having a detachable remote control switch. Jacob Izaak de Haan. 41: 1567—1967
Probe microphone with horn coupling. Edgar A. G. Shaw. 41: 894—1967
Stereo microphone. Motoyoshi Nakanishi. 41: 894—1967
Ultrasonic microphone. Lee P. Hagey. 41: 1568—1967
Wind-tunnel microphone structure. William S. Chen and Samuel Wheeler. 41: 894—1967

5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging. (For Underwater Ranging, see 13.11n.)

Papers

Instrumentation for an array of infrasonic- and hydromagnetic-wave sensors. Uri Fehr and L. C. McGahan. 41: 587—1967

5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction

Patents

Amplifier circuit. Michael J. Cudahy. 41: 263—1967
Amplifier output circuit. Bernard Amos and Jesse H. Lofton. 41: 263—1967
Apparent sound source translator. Bishnu S. Atal and Manfred R. Schroeder. 41: 263—1967
Automatic sound volume controller. Fujio Suganuma. 41: 1568—1967
Automobile speaker system with reverberation. Anthony R. Mikelevicius. 41: 1568—1967
Circuits for sound reproduction. Gale B. Curtis. 41: 895—1967
Circuits for the simultaneous amplification of an original signal and a signal derived therefrom. Erik Markvard Christopher Rorbaek Madsen. 41: 895—1967
Extended stereophonic systems. William C. Edwards. 41: 894—1967
Feedback control apparatus. Mahlon D. Burkhard. 41: 265—1967
High-fidelity column-type stereomonophonic diffuser with regulated sound deflection. Domenico Manieri. 41: 264—1967
Method and apparatus for controlling feedback. Charles Paul Boner. 41: 264—1967
Sound reproduction system. Willard A. Murray. 41: 264—1967
Sound signal transforming system. Donald L. Richter. 41: 1408—1967
Sound system. Kanesuke Kishi. 41: 264—1967
Speaker control system with reverberation. Theodore A. Byles. 41: 895—1967
Stereo signal demonstrator. Frederick L. Way. 41: 895—1967
Stereo sound system. Charles G. Roberts. 41: 895—1967
Stereophonic receiving apparatus. Joseph W. Percival and Richard W. Cook. 41: 262—1967
Stereophonic signal transmission system level control. Eric Wollaston Berth-Jones. 41: 263—1967
Stereophonic sound system. Dennis L. Pflager and Maurice R. Jackson. 41: 895—1967
Stereophonic system. Robert B. Dome. 41: 262—1967
Switching device. Dewey A. Corley. 41: 895—1967
Transfer switching system. Michael A. Tabet. 41: 546—1967

5.16 Sound Recording and Reproducing. General

Abstracts

Acoustics of rooms for classical recordings. L. L. Beranek and T. J. Schultz. 41: 1597—1967

Patents

Arrangement for the synchronous recording of image and sound. Otto Freudenschuss. 41: 1409—1967
Sound reproducer equipped cash register. Jörgen Sigurd Lien. 41: 547—1967
Sound signal correction system. Donald L. Richter. 41: 1568—1967
Sound system for picture slides. Morris Paull. 41: 896—1967
Synchronizing system utilizing capacitive coaxial cable pickup for supplying control signal. Elton L. Shaw. 41: 1409—1967

5.16d Mechanical Recording and Reproducing

Patents

Low-rumble phonograph turntable drive system. Donald J. Hammerand and Allen J. Bury. 41: 755—1967
Mechanical servo tone arm. Jacob Rabinow. 41: 754—1967
Needle cleaning brush for record changers. Robert L. Van Antwerp. 41: 755—1967
Phonograph cartridge. William A. Cavagnaro and Roy Dally. 41: 755—1967
Phonograph record. Robert Wagner. 41: 755—1967
Phonographic devices. Ladis H. Ottofy. 41: 1409—1967
Pickup arm assembly. William C. Geiger, Jr. 41: 754—1967
Pickup mechanism for phonographs. Robert J. Hammond. 41: 754—1967
Portable phonographs. Maurice E. Hardy. 41: 754—1967
Sound reproducing apparatus. Anton Ashmele. 41: 756 (2 patents)—1967
Sound reproducing device for a doll or the like. Herbert R. Beebe. 41: 1568—1967
Stereo phonograph cartridge. Roy Dally. 41: 755—1967
Stereophonic photoelectric transducer. Albert B. Smith. 41: 755—1967
Tone arm. Harland V. Holmes. 41: 754—1967
Tone arm with carriage servo. Jacob Rabinow. 41: 754—1967
Tone arm with retractable cartridge and stylus assembly. Torjus B. Heyerdahl. 41: 756—1967
Transducer element mounting. Robert J. Hammond. 41: 896—1967

5.16f Photographic Recording and Reproducing

Patents

Audio playback unit. Edward J. Gushue and David A. Goldman. 41: 1568—1967
Marking device for a sound record carrier. Werner K. Bender. 41: 1568—1967
Method of and device for recording and reproducing photographic sound patterns. Edward K. Kaprelian and Sidney Schwartz. 41: 1409—1967

Portable variable density sound recorder and reproducer. David Pelton Moore. 41: 265—1967

5.16m Magnetic Recording and Reproducing

Patents

Air bearing electromagnetic transducer head assembly. Vincent J. Powers. 41: 1570—1967
Apparatus for automatic operation of a record tape in a recording and reproducing machine. Yoshiro Nakamatsu. 41: 1570—1967
Apparatus for magnetically recording a time division multiplex signal. Edmund Russell Altonji. 41: 760—1967
Apparatus for sound reproduction. Richard Julian Treadwell. 41: 757—1967
Automatic adjustment of magnetic head spacing. Johannes Hendrik Wessels and Jacob Koorneef. 41: 1569—1967
Carrier-erase magnetic tape recording. John H. Sasseen. 41: 759—1967
Core holder for or in multi-track erasing heads. Friedrich Louzil and Alfred Sveceny. 41: 759—1967
Electro-magnetic heads. Hubert Colin Smith. 41: 756—1967
Electronic tape reader. Daniel Gauban. 41: 759—1967
Flying head mount. Robert J. Eulberg. 41: 1569—1967
Flying magnetic head assembly. John A. Felts. 41: 1569—1967
Hall effect readout device. Irving Stein. 41: 1569—1967
Head assembly in a magnetic tape recorder. 41: 756—1967
High density recorder utilizing low tape speed. Emil L. Eckstein. 41: 757—1967
Magnetic recorder-reproducer. William T. Frost. 41: 759—1967
Magnetic recorder-reproducer having grooved tape. Eduard Schuller. 41: 758—1967
Magnetic tape cartridge. Samuel Gilman. 41: 759—1967
Magnetic tape drive mechanism. Eisuke Fujimoto. 41: 758—1967
Magnetic tape feed assembly for tape recorders. H. Albert Campbell, Jr., and Harold R. Burt. 41: 756—1967
Magnetic tape recorder and reproducing machine. Norman P. Knoth. 41: 757—1967
Magnetic tape recording and reproducing apparatus. David Thomas Gwillim. 41: 757—1967
Magnetic tape transport. Harry F. Rayfield. 41: 758—1967
Magnetic transducer assemblies. Walter S. Thomas, Jr., and Raymond J. Stankiewicz. 41: 1570—1967
Magnetic transducer head assembly. Harry L. Worosz. 41: 757—1967
Magnetic transducer head mounting means. Joseph E. Smith, Jr. 41: 1568—1967
Means for mounting an eraser head to a record head. Leo W. Page. 41: 759—1967
Method and means for recording and reproducing magnetograms. Erich Rainer, Christian-Friedrich Wolf, and Walter Engel. 41: 1569—1967
Method of making a magnetic transducer head. Robert W. Broughton. 41: 757—1967
Method of recording and reproducing information in which a plurality of parallel data tracks are overlapped. William R. Maclay. 41: 758—1967
Multi-position head for magnetic recorders. Walter Herterich. 41: 759—1967
Self threading type recorder/reproducer. Friedrich Louzil. 41: 757—1967
Servo system that is insensitive to tape flutter errors. Donald James Cochran and Donald Marvin Patterson. 41: 759—1967
Slip contacting device for rotary magnetic heads in a magnetic recording and reproducing equipment. Yoshiyo Wada. 41: 1570—1967
Tape drive mechanism. Don W. Geri. 41: 758—1967
Tape handling apparatus. William W. Deighton and Anthony G. Caprio. 41: 758—1967
Tape recorder. Eugene J. Polley and Richard L. Rost. 41: 1569—1967
Tape rewind control. Trevor Drake Reader. 41: 1569—1967
Tape transport brake system. Gordon D. Svendsen. 41: 1569—1967
Transducer head locking means. James P. Casey. 41: 757—1967
Verification and correction of magnetic recording during a single pass of the transducer. Herbert U. Ragle, Jr. 41: 1570—1967

5.7 Telephones, Telephone Earphones. (See also 5.13.) Intercommunications Systems

Letters to the Editor

Limitations on the use of circumaural earphones. Robert W. Benson, Kirti K. Charan, James W. Day, J. Donald Harris, Arthur F. Niemoeller, Wayne Rudmose, Edgar A. G. Shaw, and Pearl G. Weissler. 41: 713—1967

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Measurements of earphone voltage at hearing threshold and earphone pressure at ear-canal entrance. E. A. G. Shaw. 41: 1602—1967

Patents

Audio teaching aid. William N. Locke, Lewis S. Billig, and Arthur Bisberg. 41: 760—1967
Headphone assembly. Gustave F. Falkenberg. 41: 547—1967
Intercommunication system. Samuel Curchack. 41: 265—1967
Intercommunication system. Arie Liverman. 41: 265—1967
Intercommunication system and eavesdropping preventing means therefor. Richard H. Campbell. 41: 1409—1967
Load circuits for intercommunication system. Harwood B. Moore. 41: 1410—1967
Multiple station communication network. Robert W. De Monte. 41: 1409—1967
Noise responsive automatic sound volume controlling system. Fujio Suganuma. 41: 1410—1967
Safety headpiece loudspeaker. Forrest C. Goldsworthy. 41: 265—1967

Signalling circuit for intercommunication system. Harwood B. Moore. **41**: 1570—1967
Simplified extended stereo. Robert S. Van Sickle. **41**: 896—1967
Sound reproducer with means for attachment to a telephone handpiece. Robert J. Cooke. **41**: 1410—1967
Sound system for banking service equipment. Newton J. Krug and George R. Bechtel. **41**: 1570—1967
Telephone adapter. Thomas E. Fairbairn. **41**: 896—1967
Telephone amplifier. Clarence C. Clements, Jr. **41**: 1410—1967
Two-way intercommunication system. Charles E. McCullough. **41**: 1570—1967
Two-way telephone communication system. Pierre Jeanlin. **41**: 1570—1967
Voice-controlled communication system. Antal Csicsatka. **41**: 1410—1967
Volume control circuit. Allan C. Bernstein. **41**: 896—1967
Volume control circuits for intercommunication systems. Harwood B. Moore. **41**: 1410—1967

5.8 Transducing Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

Papers

Computation of farfield radiation patterns by use of a general integral solution to the time-dependent scalar wave equation. Horace G. Ferris. **41**: 394—1967
Free-flooding unidirectional resonators for deep-ocean transducers. R. E. Horita. **41**: 158—1967
Nearfield pressure for an infinite phased array of circular pistons. V. Mangulis. **41**: 412—1967
Surface pressures generated by pistons on large spherical and cylindrical baffles. M. C. Junger. **41**: 1336—1967
Thickness/twist vibrations of a truncated, linearly tapered, crystal strip. C. B. Loutzenheiser and W. J. Denkmann. **41**: 962—1967

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Abstracts

Effect of transducer size, shape, and surface sensitivity in the measurement of boundary-layer pressures. Pritchard H. White. **41**: 1580—1967
Piston-type spherical radiation. C. T. Molloy and K. L. Miller. **41**: 1606—1967
Response of a system of point transducers to turbulent boundary-layer pressure field. D. W. Jorgensen and G. Maidanik. **41**: 1616—1967
Spherical radiator encased in a thick shell. C. T. Molloy and G. C. K. Yeh. **41**: 1606—1967
VLF adjustable acoustic band-pass filter microphone system. Bob R. Beavers and Norman J. Meyer. **41**: 1600—1967

Patents

Acoustical wave translation device. Emmanuel P. Papadakis. **41**: 897—1967
Apparatus for generating ultrasonic waves. Ben Wade Oakes Dickinson, III. **41**: 760—1967
Electro-pneumatic transducer. Kenneth R. Scudder, Carl J. Campagnuolo, and Leon B. Katchen. **41**: 547—1967
High power sound generator for sonic fatigue testing. Oskar Bschorr. **41**: 896—1967
Mechanical-to-electrical transducer. Harry W. Kompanek. **41**: 760—1967
Method and apparatus applying vibratory energy. Nicholas Maropis. **41**: 897—1967
Method for generating and transmitting sonic vibrations. Albert G. Bodine, Jr. **41**: 897—1967
Phase control system for use in producing a variable direction beam from a fixed transmitting array. Barrie Brightman and Charles R. Fisher, Jr. **41**: 266—1967
Transducer. William B. Jorden, Edward A. Murphy, and William Posner. **41**: 896—1967

Book Reviews

Crystal Physics of Interaction Processes. Warren P. Mason. (Reviewed by R. B. Lindsay.) **41**: 1565—1967

5.18d Electrodynamic Transducers

Patents

Earphone. Rudolph Görike. **41**: 897—1967
Electroacoustic transducer comprising a magnetic system with annular air gap and a resonator. Walter Paul and Adolf Adam. **41**: 1571—1967

5.18e Electrostatic Transducers

Patents

Tubular electrostrictive resonator-type transducer. Manfred Börner and Ewald Dürre. **41**: 760—1967

5.18f Magnetostrictive Transducers

Patents

Devices for sensing and indicating variations in frequency and amplitude of acoustically vibrated work members. Claus Kleesattel, Arthur Kuris, and Lewis Balamuth. **41**: 1571—1967

5.18g Electromagnetic Transducers

Patents

Apparatus for producing sonic and ultrasonic oscillations. Reiman Pohlman and Ernst Gunter Lierke. **41**: 1571—1967
Dynamic microphone. Harold F. Mosier, Jr. **41**: 266—1967
Transducer. Elmer V. Carlson. **41**: 266—1967

5.18h Feedback transducers

Patents

Extremal-centering method and system. Andrew Shoh. **41**: 898—1967
Power oscillator for an electromechanical vibrating transducer. James L. McShane. **41**: 897—1967

5.18p Piezoelectric Transducers, Ferroelectrics

Papers

Analysis of the excitation and detection of piezoelectric surface waves in quartz by means of surface electrodes. G. A. Coquin and H. F. Tiersten. **41**: 921—1967
Analysis of multiterminal piezoelectric plates. Richard Holland. **41**: 940—1967

Bechmann's number for harmonic overtones of thickness/twist vibrations of rotated Y-cut quartz plates. R. D. Mindlin. **41**: 969—1967
Cavity resonator for piezoelectric surface excitation. J. Lamb and J. Richter. **41**: 1043—1967
Some materials for ultrasonic transducer bonding at cryogenic temperatures. T. B. Bateman. **41**: 1011—1967
Transverse thickness modes in **BT**-cut quartz plates. W. J. Spencer. **41**: 994—1967
Trapped-energy modes in quartz filter crystals. W. Shockley, D. R. Curran, and D. J. Koneval. **41**: 981—1967
Use of thick transducers to generate short-duration stress pulses in thin specimens. Ronald G. Peterson and Moshe Rosen. **41**: 336—1967
Useful formulas for piezoelectric ceramic resonators and their application to measurement of parameters. Morio Onoe and Hiromichi Jumonji. **41**: 974—1967

Abstracts

Determination of resonant modes in piezoelectric plates. W. J. Spencer. **41**: 1587—1967
Effect of a negative capacitance termination on hydrophone sensitivity. Raymond Stelting. **41**: 1608—1967
Recent developments in the mathematical theory of quartz-crystal resonators. R. D. Mindlin. **41**: 1586—1967

Patents

Apparatus for producing sonic vibration at x-band microwave frequencies and higher. Edward H. Jacobsen. **41**: 898—1967
Electromechanical transducers. Jesse R. Brinkerhoff. **41**: 1571—1967
Electro-mechanical transducers and the fabrication thereof. John V. Cowan. **41**: 266—1967
Transducer assembly. J. B. Jones and Nicholas Maropis. **41**: 760—1967

5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs

Technical Notes and Research Briefs

Tunemaster. **41**: 1559—1967

Patents

Apparatus for measuring the frequency of acoustical energy. Lawrence P. Faber, Jr., and Keith S. Kirkwood. **41**: 761—1967
Electronic beat producing device. Daniel A. Esakov and William J. Hildebrandt. **41**: 898—1967
Tuning apparatus. Lawrence P. Faber and Keith S. Kirkwood. **41**: 1571—1967

6 MUSIC AND MUSICAL INSTRUMENTS

6.1 General, Unclassified

Papers

Acoustics of school-band rehearsal rooms. Nelson G. Patrick and Charles R. Boner. **41**: 215—1967
Analysis of musical instrument tones. M. David Freedman. **41**: 793—1967

Abstracts

Acoustical negative resistance. Herbert M. Neustadt. **41**: 1608—1967
Acoustics of rooms for classical recordings. L. L. Beranek and T. J. Schultz. **41**: 1597—1967

Patents

Appliance for recording and/or transducing electric and/or acoustic oscillations of various frequencies. Imre Sponga. **41**: 547—1967
Musical top. Robert Sefcik. **41**: 761—1967

Book Reviews

Akustik der Holzblasinstrumente in Einzeldarstellungen. Jürgen Meyer. (Reviewed by Robert W. Young.) **41**: 728—1967

News

New journal announced. **41**: 1381—1967

Errata

Logarithmic frequency systems. [J. Acoust. Soc. Am. **39**, 1102 (1966)]. A. G. Pikler. **41**: 1378(L)—1967

6.2 Bells, Xylophones. Other Instruments having Rigid Vibrators

Patents

Glockenspiel and support therefor. Herman R. Dean. **41**: 761—1967

6.4 Drums and Other Membranophonic Instruments

Patents

Drum head. Ernest Cheslow. **41**: 1571—1967
Drum head and method of its manufacture. Yukio Saito. **41**: 761—1967
Kettle drum. Oskar Murbach. **41**: 1410—1967

6.5 Pipe Organs

Papers

External surface-absorption cross section of a pipe organ. A. H. Benade. **41**: 32—1967

Abstracts

Active end correction of pipes and resonators. S. A. Elder. **41**: 1609—1967
Passive end correction of pipes and resonators. S. A. Elder. **41**: 1609—1967

6.6 Pianos and Other Keyboard Stringed Instruments

Patents

Music teaching device. Helen H. Ericksen. **41**: 1410—1967
Music teaching device. Harold J. Siegel. **41**: 266—1967

6.7 Violin Family. Stringed Instruments, Except Keyboard Type

Papers

Quality of violin vibrato tones. Harvey Fletcher and Larry C. Sanders. **41**: 1534—1967

Abstracts

Effective directivity pattern of a violin played by a standing performer. John B. Crabtree and B. G. Watters. **41**: 1590—1967
New tenor violin. Carleen M. Hutchins. **41**: 1608—1967

Patents

Adjustable nut for stringed instruments. Byron L. Miller and Elwood R. Rickman. **41**: 1411—1967
Bow stop for stringed instruments. Theodore Henkle. **41**: 761—1967

Device which accommodates removable frets on any fretted stringed instrument. Chester P. Keefe and John C. Navilliat. **41**: 898—1967
Musical instrument. Roy Connors. **41**: 761—1967

6.8 Wood Winds

Abstracts

Measured end corrections for woodwind tone-holes. A. H. Benade and J. S. Murday. **41**: 1609—1967
Resonances in the bassoon. John Backus. **41**: 1608—1967

6.9 Electrical Musical Instruments

Papers

Perturbations of synthetic orchestral wind-instrument tones. William Strong and Melville Clark, Jr. **41**: 277—1967
Synthesis of wind-instrument tones. William Strong and Melville Clark. **41**: 39—1967

Patents

Electrical musical instrument for producing percussion type sound effects. Errol R. Griffith. **41**: 266—1967
Teaching device. Hyman Hurvitz. **41**: 266—1967

6.10 Reed Organs. Accordions, Harmonicas

Patents

Electrified accordion. Kurt Berwin. **41**: 761—1967
Keyboard assembly for a musical instrument. Peter S. Proll. **41**: 761—1967
Musical reed toy. Philip H. Knott. **41**: 1571—1967
Reed organ. Yoshiaki Fukushima. **41**: 267—1967
Round-shaped harmonic. Shin-Hua Ts'ui. **41**: 898—1967

6.11 Singing

Papers

On an unusual mode of chanting by certain Tibetan lamas. Huston Smith, Kenneth N. Stevens, and Raymond S. Tomlinson. **41**: 1262—1967

6.12 Intonation. Vibrato. Musical Scales. Musical Composition

Papers

Frequency and time analysis of polyphonic music. P. A. Tove, L. Ejdesjö, and A. Svärdström. **41**: 1265—1967

Abstracts

Program for automatically plotting the scores of computer sound sequences. Jih-Jie Chang and Max V. Mathews. **41**: 1609—1967

6.13 Electronic Music

Abstracts

Program for automatically plotting the scores of computer sound sequences. Jih-Jie Chang and Max V. Mathews. **41**: 1609—1967

Patents

Control means for controlling electromechanical phenomena. Myron Schaeffer and Kurt Boll. **41**: 267—1967

7 NOISE AND NOISE CONTROL

7.1 General, Unclassified

Papers

Frequency discrimination following exposure to noise. John F. Brandt. **41**: 448—1967
Masking of white noise by pure tone, frequency-modulated tone, and narrow-band noise. I. M. Young and C. H. Wenner. **41**: 700—1967

Letters to the Editor

Attenuation provided by fingers, palms, tragi, and V51R ear plugs. Howard H. Holland, Jr. **41**: 1545—1967

Abstracts

Auditory afterimages produced by low-pass, high-pass, and band-rejected noises. Newman Guttman and Robert C. Lummis. **41**: 1592—1967
Changes of middle-ear acoustic impedance resulting from contralateral noise, female and male subjects. Jon K. Shallop. **41**: 1577—1967

Book Reviews

Measurement and Suppression of Noise with Special Reference to Electrical Machines, The. A. J. King. (Reviewed by Tony F. W. Embleton.) **41**: 728—1967
Noise Control in Industry. W. A. Hines. (Reviewed by Tony F. W. Embleton.) **41**: 543—1967

News

AIHC features noise problems. **41**: 1563—1967
Conference on Acoustic Noise and Its Control, 23–27 January 1967, London, England. **41**: 230—1967
Penn State announces Industrial Noise and Engineering Control seminar. **41**: 723—1967
Symposium on noise pollution. **41**: 726—1967

7.2 Annoyance. Effect of Noise on Human Beings

Papers

Frequency discrimination in noise. G. Bruce Henning. **41**: 774—1967

Abstracts

Acceptable noise exposures. James H. Botsford. **41**: 1611—1967

7.4 Community Noise

Technical Notes and Research Briefs

Macbeth at large: clever organization murders sleep nightly. **41**: 1554—1967
Meanwhile, back at City Hall . . . **41**: 1554—1967
Notes in the margin. **41**: 1554—1967

Abstracts

On the noise of crowds. William K. Connor. **41**: 1590—1967

7.6 Noise in Buildings. (See also 2.2.)

Technical Notes and Research Briefs

Concrete soundbox for noise control. **41**: 536—1967

Book Reviews

Sound Control and Thermal Insulation of Buildings. Paul Dunham Close. (Reviewed by D. G. Stephenson and T. D. Northwood.) **41**: 891—1967

7.7 **Machinery Noise. Mufflers. Noise Silencers**

Papers

Matrix formulation in acoustical analysis of mechanically driven fluid systems. W. M. Wang. **41**: 1418—1967

Transversal motion in transformer laminations as a cause of noise. Sol Hasson and Yechiel Shulman. **41**: 1413—1967

Technical Notes and Research Briefs

New industrial acoustics facility for dynamic rating of duct silencers. **41**: 869—1967

Quiet transit wheel. **41**: 537—1967

Abstracts

Application of the fast Fourier transform to third-octave and octave-band analysis of noise produced by business machines. G. C. Maling, Jr., W. T. Morrey, and W. W. Lang. **41**: 1610—1967

Effects of stator pitch and removal on axial-flow compressor-noise generation. Robert J. King. **41**: 1610—1967

Patents

Acoustical resonance apparatus for increasing the power output of an internal combustion engine. John S. Kopper. **41**: 549—1967

Adjustable muffler. Edward W. Bottum. **41**: 548—1967

Clam shell thrust reversers with noise suppressors. Harold L. Bennett, Byron K. Bohm, and Wendell H. Pearson. **41**: 267—1967

Combined thrust reversing and noise suppressing device for turbo-jetengines. Arnold G. Parker. **41**: 268—1967

Diffuser screen with heat-insulating rungs for exhaust noise suppressor for reaction engines. **41**: 547—1967

Engine soundproofing. Harry Najimian, Jr. **41**: 548—1967

Exhaust noise suppressor for reaction engines. Maron L. Morris and John A. Sobel III. **41**: 268—1967

Helical vane for sound absorbing device and method of making said vane. Leslie S. Wirt. **41**: 898—1967

Jet engine noise suppression nozzle with aerodynamic supplemental fluting. John A. Lawler. **41**: 267—1967

Jet engine noise suppressor and booster. Clarence R. Possell. **41**: 548—1967

Jet noise suppression means. Alec D. Young, Geoffrey M. Lilley, and Robert Westley. **41**: 547—1967

Jet noise suppressor nozzle. David M. Brown, John M. S. Keen, and Bertram H. Urmston. **41**: 268—1967

Jet pipe nozzle silencers. Alec D. Young. **41**: 548—1967

Jet propulsion nozzle with noise reducing means. David M. Brown. **41**: 267—1967

Method of making intermediate shell construction for silencer or muffler. James H. Selig. **41**: 548—1967

Muffler construction. Carl E. Nordquest and Marvin O. Ross. **41**: 269—1967

Muffler with expansion chamber defining centrifugal flow path. Ramon B. Hill. **41**: 548—1967

Multi-passage muffler producing colliding fluid streams. Charles M. Hamilton and Daniel M. Kapral. **41**: 269—1967

Multipassage silencer for pneumatic tool. Arthur W. Wallace. **41**: 549—1967

Noise suppression nozzles with thrust reversal provision for jet engines. William A. Reinhart. **41**: 268—1967

Sound absorbing pipe lining having packing with different densities. Kurt Seifert. **41**: 549—1967

7.8 **Noise Generators (Solid, Liquid, and Gaseous). Sirens**

Patents

Elastic wave concentrator. Stanley R. Rich. **41**: 549—1967

Toy sound device adapted to actuate a resonator by cyclic series of impulses. John W. Ryan. **41**: 1572—1967

7.10 **Aerodynamic Noise. Jet Noise**

Papers

Effect of temperature on the high-frequency component of the jet noise. G. Krishnappa. **41**: 1208—1967

Letters to the Editor

Atmospheric effects on sonic booms. Walton L. Howes. **41**: 522—1967

Farfield spectrum of the sonic boom. Walton L. Howes. **41**: 716—1967

Technical Notes and Research Briefs

Ground runup silencer for Concorde Supersonic Transport. **41**: 1558—1967

Abstracts

Instrumentation and techniques for recording aircraft-flyover noise. Edgar L. Zwieback. **41**: 1609—1967

Jet engine sideline noise measurements. J. V. O'Keefe and G. W. Bielak. **41**: 1610—1967

Propagation of sound from airport ground operations. Peter A. Franken and Dwight E. Bishop. **41**: 1610—1967

Quiet wind-tunnel facility for investigating flow noise. Carl E. Hanson and Patrick Leehey. **41**: 1610—1967

Shadowgraph visualization of jet noise. M. V. Lowson and J. B. Ollerhead. **41**: 1610—1967

Book Reviews

Alleviation of Jet Aircraft Noise Near Airports. Jet Aircraft Noise Panel. (Reviewed by A. Powell.) **41**: 891—1967

Errata

Energy spectral density of the sonic boom [J. Acoust. Soc. Am. **40**, 496(L) (1966)]. J. R. Young. **41**: 1378—1967

8 **STANDARDS**

8.1 **General, Unclassified**

Letters to the Editor

Name for unit radian frequency. M. Strasberg. **41**: 1367—1967

On the standard reference pressure. G. S. Bennett. **41**: 523—1967

Technical Notes and Research Briefs

Don't bury cps yet! W. Dixon Ward. **41**: 868—1967

New American standard for filters. **41**: 534—1967

News

Standard notes. **41**: 721, 877, 1380—1967

9 SPEECH COMMUNICATION

9.1 General, Unclassified

Papers

On an unusual mode of chanting by certain Tibetan lamas. Huston Smith, Kenneth N. Stevens, and Raymond S. Tomlinson. **41**: 1262—1967

Book Reviews

Visible Speech. Ralph K. Potter, George A. Kopp, and Harriet G. Kopp. (Reviewed by Kenneth N. Stevens.) **41**: 889—1967

News

Center for Rate Controlled Recordings. **41**: 1563—1967

Conference on speech-analyzing aids for the deaf. **41**: 1562—1967

Conference on speech communication and processing. **41**: 1561—1967

Denes, Peter, to head new department at Bell Telephone Laboratories. **41**: 1380—1967

Sixth International Congress of Phonetic Sciences, 7–13 September 1967, Prague, Czechoslovakia. **41**: 726—1967

9.2 Anatomy and Physiology of the Larynx and Vocal Tract

Papers

Determination of the geometry of the human vocal tract by acoustic measurements. M. R. Schroeder. **41**: 1002—1967

Determination of the vocal-tract shape from measured formant frequencies. P. Mermelstein. **41**: 1283—1967

Numerical model of coarticulation. Sven E. G. Öhman. **41**: 310—1967

Abstracts

Absence of syllabic "chest pulses." Philip Lieberman, John D. Griffiths, Jere Mead, and Ronald Knudson. **41**: 1614—1967

Comparison of two methods of measuring subglottal air pressure during the production of speech. Philip Lieberman, Jere Mead, Ronald Knudson, David Leith, Peter Macklem, and Norma Wilson. **41**: 1614—1967

Effect of gas constants on voicing frequency. Sheldon B. Michaels and Weiant Wathen-Dunn. **41**: 1614—1967

Mechanism of glottal vibration for vowels and consonants. Morris Halle and Kenneth Stevens. **41**: 1613—1967

Some observations of laryngeal phenomena derived from high-speed motion pictures. Henry I. Soron, Sheldon B. Michaels, and Philip Lieberman. **41**: 1614—1967

Speech pathology and basic research on speech. James F. Curtis. **41**: 1588—1967

STROL study of vocal-fold-area change as a function of pitch. Robert F. Coleman and Harry Hollien. **41**: 1613—1967

Studies of variations in glottal aperture using photoelectric glottography. John Ohala. **41**: 1613—1967

Vocal-cord spectra derived from glottal-area waveforms and subglottal photocell monitoring. Ronald W. Wendahl and Robert F. Coleman. **41**: 1613—1967

9.3 Acoustic Analysis of Speech

Papers

Cepstrum pitch determination. A. Michael Noll. **41**: 293—1967

Determination of the vocal-tract shape from measured formant frequencies. P. Mermelstein. **41**: 1283—1967

Dimensional analysis of vowel spectra. R. Plomp, L. C. W. Pols, and J. P. van de Geer. **41**: 707—1967

Phonemic analysis of consonants in helium speech. Russell L. Sergeant. **41**: 66—1967

Technique for correcting helium speech distortion. W. R. Stover. **41**: 70—1967

Letters to the Editor

Asymmetries in the cumulative probability distributions of the speech waveform instantaneous amplitude. G. Williams. **41**: 1546—1967

Abstracts

Characterization of speech sources in terms of genetic operating characteristics. Caldwell P. Smith. **41**: 1595—1967

Differential sound spectograph. Walter Lawrence. **41**: 1595—1967

Studies of variations in glottal aperture using photoelectric glottography. John Ohala. **41**: 1613—1967

Vocal-cord spectra derived from glottal-area waveforms and subglottal photocell monitoring. Ronald W. Wendahl and Robert F. Coleman. **41**: 1613—1967

9.4 Speech Synthesis

Papers

Cepstrum pitch determination. A. Michael Noll. **41**: 293—1967

Machine-aided formant determination for speech synthesis. William J. Strong. **41**: 1434—1967

Time adjustment in speech synthesis. Robert J. Scott. **41**: 60—1967

Abstracts

New approach to speech compression. Hideo Seo. **41**: 1595—1967

Speech synthesis by rule as a research technique. Ignatius G. Mattingly. **41**: 1588—1967

Studies in articulatory coordination. Sven E. G. Öhman. **41**: 1588—1967

9.5 Perception of Speech and Speechlike Sounds. (See also 4.15.)

Papers

Analysis of pure-tone audiometric responses in relation to speech development in the profoundly deaf. G. W. G. Montgomery. **41**: 53—1967

Auditory search for syllables embedded within meaningful sentences. Julia Davis. **41**: 1277—1967

Effects of transmission delay and access delay on the efficiency of verbal communication. Robert M. Krauss and Peter D. Bricker. **41**: 286—1967

Relative intelligibility of different transforms of clipped speech. W. A. Ainsworth. **41**: 1272—1967

Abstracts

Analysis of perceptual confusions in identification of dichotically presented CVC syllables. D. Shankweiler and M. Studdert-Kennedy. **41**: 1581—1967

Perceptual study of English /l/ allophones. Mark Haggard. **41**: 1581—1967
Studies in auditory search. Julia Davis. **41**: 1582—1967

9.6 Measures of Speech Intelligibility, Quality, Information Content

Papers

Analysis of pure-tone audiometric responses in relation to speech development in the profoundly deaf. G. W. G. Montgomery. **41**: 53—1967
Auditory search for syllables embedded within meaningful sentences. Julia Davis. **41**: 1277—1967
Effects of transmission delay and access delay on the efficiency of verbal communication. Robert M. Krauss and Peter D. Bricker. **41**: 286—1967
Influence of compressor action on speech intelligibility. Betty J. Caraway and Raymond Carhart. **41**: 1424—1967
Phonemic analysis of consonants in helium speech. Russell L. Sergeant. **41**: 66—1967
Relative intelligibility of different transforms of clipped speech. W. A. Ainsworth. **41**: 1272—1967
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Analysis of perceptual confusions in identification of dichotically presented CVC syllables. D. Shankweiler and M. Studdert-Kennedy. **41**: 1581—1967
Confusions of gravity and diffuseness of filtered prevocalic /p,t,k/ and postconsonantal /u,i,a/. Sadanand Singh and Donald M. Morehead. **41**: 1581—1967
Effects of delayed auditory feedback on ictal-speech automatisms. Richard Allen Chase, John K. Cullken, Jr., Ernst F. L. Niedermeyer, and Dietrich P. Blumer. **41**: 1581—1967
Effects of high-cutoff filtered noise upon the intelligibility of different speech materials in a closed-response set. A. C. Busch and D. Eldredge. **41**: 1582—1967
Optimum linear speech filter. John D. Griffiths. **41**: 1595—1967
Relations between prosodic variables and emotions in normal American English utterances. George L. Huttar. **41**: 1581—1967
Relative contribution of visual and auditory components of speech to speech intelligibility under varying conditions of frequency distortion. Derek A. Sanders. **41**: 1582—1967
Studies in auditory search. Julia Davis. **41**: 1582—1967

9.7 Phonetics, Linguistics, Statistics of Language

Papers

Numerical model of coarticulation. Sven E. G. Öhman. **41**: 310—1967
On an unusual mode of chanting by certain Tibetan lamas. Huston Smith, Kenneth N. Stevens, and Raymond S. Tomlinson. **41**: 1262—1967
Phoneme grouping for speech recognition. D. R. Reddy. **41**: 1295—1967

Letters to the Editor

Syllable duration in oral and whispered reading. Martin F. Schwartz. **41**: 1367—1967

Abstracts

Absence of syllabic "chest pulses." Philip Lieberman, John D. Griffiths, Jere Mead, and Ronald Knudson. **41**: 1614—1967
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Mechanism of glottal vibration for vowels and consonants. Morris Halle and Kenneth Stevens. **41**: 1613—1967
On matching the speech signal to mechanisms of production. Arthur S. Abramson. **41**: 1588—1967
Perceptual study of English /l/ allophones. Mark Haggard. **41**: 1581—1967
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Study of voicing in initial stops found in the prelinguistic vocalizations of infants from different language environments. Malcolm S. Preston, Rachel E. Stark, and Grace Yeni-Komshian. **41**: 1614—1967

Book Reviews

Models of Language. I. I. Revzin. Translated from the Russian by M. F. C. Owen and A. S. C. Ross. (Reviewed by Henry Kucera.) **41**: 890—1967

9.8 Systems for Speech Transmission. Analysis-Synthesis Telephony, Speech Coding

Papers

Cepstrum pitch determination. A. Michael Noll. **41**: 293—1967
Effects of transmission delay and access delay on the efficiency of verbal communication. Robert M. Krauss and Peter D. Bricker. **41**: 286—1967
Influence of compressor action on speech intelligibility. Betty J. Caraway and Raymond Carhart. **41**: 1424—1967

Machine-aided formant determination for speech synthesis. William J. Strong. **41**: 1434—1967
Relative intelligibility of different transforms of clipped speech. W. A. Ainsworth. **41**: 1272—1967
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Time adjustment in speech synthesis. Robert J. Scott. **41**: 60—1967

Technical Notes and Research Briefs

Speech bandwidth halved by new method. **41**: 1554—1967

Abstracts

Automatic grapheme-to-phoneme translation of English. Francis F. Lee. **41**: 1594—1967
Deconvolution of speech. Alan V. Oppenheim. **41**: 1595—1967
Extraction of the spectrum envelope for voiced speech segments. Paul Mermelstein. **41**: 1595—1967
New approach to speech compression. Hideo Seo. **41**: 1595—1967
Optimum linear speech filter. John D. Griffiths. **41**: 1595—1967
Performance of a 200-syllable communication system. Edward S. Rogers and Everett G. May. **41**: 1594—1967

Patents

Method of and apparatus to monitor interconnected speech-circuits for noise. Werner G. Feger. **41**: 550—1967
Privacy system. Manfred R. Schroeder. **41**: 550—1967
Query-reply signal processing apparatus. Emik A. Avakian and Robert J. Buegler. **41**: 549—1967
Word code generator. Genung L. Clapper. **41**: 1411—1967

9.9 Instruments for Speech Measurement

Papers

Cepstrum pitch determination. A. Michael Noll. **41**: 293—1967
Determination of the geometry of the human vocal tract by acoustic measurements. M. R. Schroeder. **41**: 1002—1967

9.10 Machine Recognition of Speech

Papers

Dimensional analysis of vowel spectra. R. Plomp, L. C. W. Pols, and J. P. van de Geer. **41**: 707—1967
Phoneme grouping for speech recognition. D. R. Reddy. **41**: 1295—1967

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Limited-vocabulary adaptive speech-recognition system. Paul W. Ross. **41**: 1594—1967
Performance of a 200-syllable communication system. Edward S. Rogers and Everett G. May. **41**: 1594—1967
Research towards improved machine recognition of syllables with initial /l/, /m/, /n/, and /r/. Walter H. Jamison. **41**: 1594—1967
Some results from the normalization of speaker differences in a mechanical vowel recognizer. John F. Hemdal. **41**: 1594—1967

Patents

Acoustic apparatus and method for analyzing speech. Herbert Belar. **41**: 1411—1967
Diode logic circuitry. William C. Dersch. **41**: 1411—1967
Sound analyzing system. William C. Dersch. **41**: 550—1967

10 ULTRASONICS

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Patents

Pressure and vacuum determination. Robert C. Thompson. **41**: 899—1967
Printing methods and apparatus. Lewis Balamuth and Arthur Kuris. **41**: 762—1967

Book Reviews

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News

IEEE Ultrasonics Symposium, 4–6 October 1967, Vancouver, B. C., Canada. Robert W. Moss. **41**: 875—1967

10.2 Physical Effects of Ultrasonic Waves. Optical Diffraction. Ultrasonic Processing

Papers

Analysis of acoustic-emission strain waves. D. M. Egle and C. A. Tatro. **41**: 321—1967
Effects of solid impurities on cavitation nuclei in water. C. D. Messino', D. Sette, and F. Wanderlingh. **41**: 573—1967
Exact simplification of time-dependent ultrasonic-standing-wave light-diffraction equations. L. E. Hargrove. **41**: 91—1967
Limits of validity of some optical ultrasonic-wave-form-determination methods. L. E. Hargrove. **41**: 1025—1967
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Variation of the relative intensity of cavitation with temperature. M. Ibisi and B. Brown. **41**: 568—1967

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Viscosity determination by means of ultrasonics. F. Fittipaldi and E. Ragozzino. **41**: 717—1967
Visualization of quasilongitudinal and quasitransverse elastic waves. Juergen H. Staudte and Bill D. Cook. **41**: 1547—1967

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Theory of light scattering in doubly relaxing liquids. W. H. Nichols and E. F. Carome. **41**: 1601—1967
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Apparatus for applying ultrasonic vibration to thermoplastic polymers during forming. James W. Pendleton. **41**: 1411—1967

Apparatus for drying and treating of hair via ultrasonics. Ralph W. Goble. **41**: 1572—1967

Apparatus for sealing polymeric sheet material by ultrasonic energy. Seymour G. Linsley and Joseph E. DiMeglio. **41**: 899—1967

Compressible fluid sonic pressure wave apparatus and method. Nathaniel Hughes. **41**: 269—1967

Method and apparatus for vibrating squeeze-forming of metals. Sidley O. Evans. **41**: 269—1967

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Method for the extrusion of plastics. Reuben A. Tigner. **41**: 762—1967

Method for reinforcing sewn material. Luther G. Simjian. **41**: 1411—1967

Method for strengthening metals. Bertwin Langenecker. **41**: 550—1967

Method of and apparatus for metal-coating articles. **41**: 550—1967

Method of forming an information retrieval aperture card. Benjamin B. Osher. **41**: 899—1967

Method of inspection utilizing ultrasonic energy. Fenton M. Wood and Noel B. Proctor. **41**: 1572—1967

Method of making bonded wire circuits. Clifford L. Lodder. **41**: 1572—1967

Methods of bonding electrical conductors to electrical components. David H. Pruden and David Schoenthaler. **41**: 1572—1967

Milk extraction, processing and packaging system. Merrill S. Brodrick. **41**: 899—1967

Reverse flow acoustic generator spray nozzle. William K. Fortman. **41**: 1411—1967

Sonic pressure wave atomizing apparatus and methods. Nathaniel Hughes. **41**: 269—1967

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Ultrasonic cleaning process. Howard Livingston. **41**: 899—1967

Ultrasonic degassing of liquids. Raymond L. Ploeger. **41**: 762—1967

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Ultrasonic sieving. Melvin N. A. Peterson. **41**: 1573—1967

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10.3 Ultrasonic Instruments. (See also 5.18.)

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Cavity resonator for piezoelectric surface excitation. J. Lamb and J. Richter. **41**: 1043—1967

Pulsed wide-band ultrasonic measuring bridge for liquids and solids. H. G. Danielmeyer. **41**: 1021—1967

Some materials for ultrasonic transducer bonding at cryogenic temperatures. T. B. Bateman. **41**: 1011—1967

Use of thick transducers to generate short-duration stress pulses in thin specimens. Ronald G. Peterson and Moshe Rosen. **41**: 336—1967

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Elastic surface-wave excitation, using parallel-line electrodes above piezoelectric plates. Kazuhiko Yamanouchi and Kimio Shibayama. **41**: 222—1967

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Subharmonic generation in an acoustic interferometer. Jack A. Bamberg and Bill D. Cook. **41**: 1584—1967

Three-dimensional imaging of sound fields by Bragg diffraction of light. A. Korpel. **41**: 1601—1967

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Apparatus for generating, directing and receiving ultrasonic wave trains. Ben Wade Oakes Dickinson III. **41**: 1573—1967

Apparatus for joining thermoplastic sheet material with ultrasonic rotary vibrators. Lewis Balamuth and Arthur Kuris. **41**: 271—1967

Apparatus for ultrasonic testing. Andrew Stanya. **41**: 551—1967

Apparatus useful in ultrasonic inspection of pipes. Larry O. Stebbins. **41**: 270—1967

Doppler type intruder detection system arranged to eliminate extraneous air turbulence effects. Samuel M. Bagno. **41**: 270—1967

Magnetostrictive transducer. Sebastian F. DiGiacomo, Walter C. Lewis, and James D. Ried. **41**: 270—1967

Method and apparatus for detecting flaws using ultrasonic helical waves. Ben Wade Oakes Dickinson III. **41**: 1573—1967

Method of and apparatus for ultrasonic inspection utilizing correlation techniques. Fenton M. Wood and Noel B. Proctor. **41**: 901—1967

Motion responsive flaw marking apparatus and method. Fenton M. Wood and Alfred E. Crouch. **41**: 900—1967

Omnidirectional ultrasonic search system. Stephen D. Hart. **41**: 270—1967

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Rotating sonic welder. Vincent P. Farley. **41**: 900—1967

Sonic wave pulse echo apparatus and method for measuring flaw dimension. Andrew Stanya and Norman A. Herrick. **41**: 763—1967

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Ultrasonic bolt tension tester. John W. Wilhelm and Waldo H. Kliever. **41**: 1574—1967

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Ultrasonic leak locator. Carl L. Parker. **41**: 763—1967
Ultrasonic measuring apparatus. James D. King. **41**: 551—1967
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Ultrasonic testing apparatus. Ben Wade Oakes Dickinson III. **41**: 1573—1967
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Ultrasonic testing system. Elliot A. Henry. **41**: 270—1967
Ultrasonic transducer positioning apparatus. William R. Van der Veer and Walter A. Gunkel. **41**: 900—1967
Ultrasonic washing machine and transducer therefor. Gilbert G. Brown. **41**: 1573—1967

10.4 Gases, Ultrasonic Velocity, Dispersion, Absorption. (See also 11.3.)

Papers

Effect of diffusion on ultrasonic attenuation in mixtures of the rare gases. Andre K. Law, N. Koronaios, and R. B. Lindsay. **41**: 93—1967
Relaxation of nitric oxide in mixtures with argon. H. O. Kneser, H.-J. Bauer, and H. Kosche. **41**: 1029—1967
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Vibrational relaxation in carbon dioxide/helium mixtures. J. W. L. Lewis and F. D. Shields. **41**: 100—1967

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On the use of the stimulated Brillouin scattering technique. J. A. Bucaro and E. F. Carome. **41**: 1370—1967

Abstracts

Density dependence of the bulk viscosity in argon. W. M. Madigosky. **41**: 1591—1967

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Papers

Acoustic velocity with relation to chemical constitution in alcohols. Graham W. Marks. **41**: 103—1967
Anelastic relaxation of water and hydroxyl ions in alkali halides. K. Brugger, T. C. Fritz, and D. A. Kleinman. **41**: 1015—1967
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Temperature dependence of ultrasonic absorption and the compressional viscosity due to structural rearrangement in unassociated liquids. J. E. Piercy and M. G. Seshagiri Rao. **41**: 1063—1967
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Ultrasonic absorption in aqueous suspensions of spherical polystyrene particles. S. A. Hawley and F. Dunn. **41**: 1590—1967
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Ultrasonic relaxation in divalent sulfate solutions. Louis Goldfarb and Ernest Yeager. **41**: 1591—1967
Velocity dispersion in liquid benzene at ultrahigh frequencies. C. Leonard O'Connor, Joseph P. Schlupf, and Thomas S. Stakelon. **41**: 1601—1967

Velocity dispersion measurements in benzene and carbon tetrachloride. E. F. Carome, S. P. Singal, and C. R. Kunsitis. **41**: 1601—1967

10.6 Solids, Ultrasonic Velocity, Dispersion, Absorption

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Analysis of the excitation and detection of piezoelectric surface waves in quartz by means of surface electrodes. G. A. Coquin and H. F. Tiersten. **41**: 921—1967

Anharmonicity in sodium chloride. Karl D. Swartz. **41**: 1083—1967

Calculation of lattice-parameter changes with hydrostatic pressure from third-order elastic constants. R. N. Thurston. **41**: 1093—1967

Dislocation relaxations in single-crystal and polycrystalline niobium and tantalum at megahertz frequencies. O. M. Mracek Mitchell. **41**: 1058—1967

Interpretation of ultrasonic experiments on finite-amplitude waves. R. N. Thurston and M. J. Shapiro. **41**: 1112—1967

Measurement of the piezoelectric constant of quartz at gigacycle frequencies. Paul H. Carr. **41**: 75—1967

Measurement of very small changes in the velocity of ultrasonic waves in solids. H. J. McSkimin and P. Andreatch, Jr. **41**: 1052—1967

Mode conversion in the long-wavelength limit. James N. Lange. **41**: 1449—1967

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Pulsed wide-band ultrasonic measuring bridge for liquids and solids. H. G. Danielmeyer. **41**: 1021—1967

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Use of thick transducers to generate short-duration stress pulses in thin specimens. Ronald G. Peterson and Moshe Rosen. **41**: 336—1967

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Interference of finite-amplitude ultrasonic waves in solids. W. B. Gauster and M. A. Breazeale. **41**: 860—1967

Preparation of bismuth surfaces for ultrasonic attenuation measurements. R. Augeri and S. J. Freedman. **41**: 1369—1967

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10.8 Chemical Effects of Ultrasonic Waves

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Method and apparatus for electrochemical shaping of a workpiece. John E. Clifford and Kempes F. Trager. **41**: 271—1967

10.10 Ultrasonic Relaxation Processes in Solids, Liquids, and Gases

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Anelastic relaxation of water and hydroxyl ions in alkali halides. K. Brugger, T. C. Fritz, and D. A. Kleinman. **41**: 1015—1967

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11 RADIATION AND SCATTERING

11.2 Reflection, Refraction, Diffraction, and Interference of Sound Waves

Papers

Audio-frequency measurements of the viscoelastic properties of polydimethylsiloxane liquids. J. Lamb and P. Lindon. **41**: 1032—1967

Axial focusing of sound in the SOFAR channel. A. O. Williams, Jr., and William Horne. **41**: 189—1967

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Cross section of a circular cylinder with an impedance-loaded strip along a generatrix. M. J. Deschenes. **41**: 1453—1967

Diffraction of acoustic pulses by obstacles of arbitrary shape with a Robin boundary condition. Richard Paul Shaw. **41**: 855—1967

Echoes from hollow aluminum spheres in water. K. Jerome Diercks and R. Hickling. **41**: 380—1967

External surface-absorption cross section of a pipe organ. A. H. Benade. **41**: 32—1967

Guided infrasonic modes in a temperature- and wind-stratified atmosphere. Allan D. Pierce. **41**: 597—1967

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Practical model of shallow-water acoustic propagation. J. D. Macpherson and M. J. Daintith. **41**: 850—1967
Propagation of *S–H* waves in inhomogeneous media. Ravi Ravindra. **41**: 1328—1967
Reflection and transmission of sound waves by a moving fluid layer. C. Yeh. **41**: 817—1967
Reflection of wave trains in semi-infinite plates. Peter J. Torvik. **41**: 346—1967
Refracted/reflected ray transmissions in a divergent channel. Melvin J. Jacobson and John G. Clark. **41**: 167—1967
Resonance scattering of sound by a small gaseous object of arbitrary form. M. S. Steinberg. **41**: 1352—1967
Separation of the stress equations of motion in nonhomogeneous isotropic elastic media. C. R. A. Rao. **41**: 612—1967
Shadowing of randomly rough surfaces. R. J. Wagner. **41**: 138—1967
Specular scattering of underwater sound from a wind-driven surface. Herman Medwin. **41**: 1485—1967
Surface pressures generated by pistons on large spherical and cylindrical baffles. M. C. Junger. **41**: 1336—1967
Theoretical studies on the scattering of acoustic waves from a rough surface. C. W. Horton, Sr., and T. G. Muir. **41**: 627—1967
Two-dimensional anisotropic acoustic diffraction. Edward Gates. **41**: 118—1967
Volume-scattering measurements at 12 kc/sec in the Western Pacific. W. E. Batzler and R. J. Vent. **41**: 154—1967

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Creeping-wave analysis of acoustic scattering by elastic, cylindrical shells. Peter Ugincius and Herbert Überall. **41**: 1579—1967
Diffraction of acoustic pulses by obstacles of arbitrary shape with an impedance-boundary condition. Richard Paul Shaw. **41**: 1580—1967
Omnidirectional scattering of acoustic waves from time-varying rough surfaces. B. E. Parkins. **41**: 1596—1967
Scattering by penetrable prolate spheroids. C. Yeh. **41**: 1579—1967
Scattering of plane wave by infinite hemicylindrical bosses with random radii on a plane surface. H. S. Hayre and W. A. Klos. **41**: 1579—1967
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Scattering of acoustic waves. **41**: 888—1967

11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

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Comparison of experimental and theoretical sound-attenuation values in a buried network of long pipes. Paul L. Michael and Donn P. Hogan. **41**: 593—1967
Extrinsically induced acceleration waves in elastic bodies. Morton E. Gurtin and Edward K. Walsh. **41**: 1320—1967
Measurement of the attenuation constant in a tube having uniform cross section. Joseph W. Rogers. **41**: 135—1967
Propagation of *S–H* waves in inhomogeneous media. Ravi Ravindra. **41**: 1328—1967
Transient solution for sound radiated into a viscous fluid. David T. Blackstock. **41**: 1312—1967

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Comments on "Parametric solution of the dispersion relation for guided sound propagation in shallow water" [Allan D. Pierce, J. Acoust. Soc. Am. **39**, 1139 (1966)]. Ivan Tolstoy. **41**: 1376—1967
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11.4 Waves in Bounded Media

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Analysis of the excitation and detection of piezoelectric surface waves in quartz by means of surface electrodes. G. A. Coquin and H. F. Tiersten. **41**: 921—1967
Axial focusing of sound in the SOFAR channel. A. O. Williams, Jr., and William Horne. **41**: 189—1967
Complete solutions of the "Webster" horn equation. E. Eisner. **41**: 1126—1967
Matrix formulation in acoustical analysis of mechanically driven fluid systems. W. M. Wang. **41**: 1418—1967
Mode conversion in the long-wavelength limit. James N. Lange. **41**: 1449—1967
Refracted/reflected ray transmissions in a divergent channel. Melvin J. Jacobson and John G. Clark. **41**: 167—1967
Solid torsional horns. Robert W. Pyle, Jr. **41**: 1147—1967

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Acoustic field in an inhomogeneous medium with boundaries. Roy L. Deavenport. **41**: 1617—1967
Frequency spaces for cylindrical and spherical enclosures. Ronald Kligman and Richard Waterhouse. **41**: 1615—1967
On wave propagation in an elastic plate with nonmixed edge conditions. Julius Miklowitz. **41**: 1587—1967

11.5 **Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Source of Sound. (See also 5.3, 12.3z, and 13.7.)**

Papers

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Computation of farfield radiation patterns by use of a general integral solution to the time-dependent scalar wave equation. Horace G. Ferris. **41**: 394—1967

Diffraction of acoustic pulses by obstacles of arbitrary shape with a Robin boundary condition. Richard Paul Shaw. **41**: 855—1967

Far-field sound radiation from randomly vibrating structures. Joshua E. Greenspon. **41**: 1201—1967

Integral equation method for radiation from vibrating bodies. Lawrence G. Copley. **41**: 807—1967

Matrix formulation in acoustical analysis of mechanically driven fluid systems. W. M. Wang. **41**: 1418—1967

Measurement of acoustic resistance at sound-pressure levels to 171 dB. P. A. Marino, Jr., N. Bohn, and G. D. Garrison. **41**: 1325—1967

Measurements of the effect of geometric scale on structural impedance and radiated sound. Fred Schloss and Wayne T. Reader. **41**: 1193—1967

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Monostatic reflection from a rigid rectangular plane. Werner G. Neubauer and Louis R. Dragonette. **41**: 656—1967

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Acoustic nonlinearity of an orifice. Uno Ingard and Hartmut Ising. **41**: 1582—1967

Acoustical negative resistance. Herbert M. Neustadt. **41**: 1608—1967

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Radiation of sound by surface waves. Richard K. Cook. **41**: 1580—1967

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Errata

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11.6 **Wave Propagation in Tubes**

Papers

Comparison of experimental and theoretical sound-attenuation values in a buried network of long pipes. Paul L. Michael and Donn P. Hogan. **41**: 593—1967

Finite-amplitude distortion in air at high acoustic pressures. Stephen H. Burns. **41**: 1157—1967

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Reception and self-noise of simple lines and perforated pipes in motion. Ewald Eichler. **41**: 1615—1967

Transmission phenomena in slotted acoustic tubes. Joseph Wood Rogers. **41**: 1615—1967

11.7 **Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)**

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Axial focusing of sound in the SOFAR channel. A. O. Williams, Jr., and William Horne. **41**: 189—1967

Comparison of curvilinear and linear profile approximation in the calculation of underwater sound intensities by ray theory. Melvin A. Pedersen and David F. Gordon. **41**: 419—1967

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Nearfield pressure for an infinite phased array of circular pistons. V. Mangulis. **41**: 412—1967

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Separation of the stress equations of motion in non-homogeneous isotropic elastic media. C. R. A. Rao. **41**: 612—1967
Shadowing of randomly rough surfaces. R. J. Wagner. **41**: 138—1967
Transient response of an elastic shell in plane strain. L. M. Keer, J. F. Fleming, and G. Herrmann. **41**: 358—1967
Transient solution for sound radiated into a viscous fluid. David T. Blackstock. **41**: 1312—1967
Two-dimensional anisotropic acoustic diffraction. Edward Gates. **41**: 118—1967

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Ray path in a linearly moving, inhomogeneous, layered ocean model. H. S. Hayre and I. D. Tripathi. **41**: 1373—1967
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Acoustic admittance of a subsonic-wall boundary layer. C. L. Morfey. **41**: 1615—1967
Acoustic field in an inhomogeneous medium with boundaries. Roy L. Deavenport. **41**: 1617—1967
Acoustic propagation in a continuously refracting medium. D. K. Y. Ai and L. P. Solomon. **41**: 1617—1967
Creeping-wave analysis of acoustic scattering by elastic, cylindrical shells. Peter Ugincius and Herbert Überall. **41**: 1579—1967
Diffraction of acoustic pulses by obstacles of arbitrary shape with an impedance-boundary condition. Richard Paul Shaw. **41**: 1580—1967
Ray representation of diffraction effects in the spit-beam sound field. E. L. Murphy. **41**: 1617—1967
Scattering by penetrable prolate spheroids. C. Yeh. **41**: 1579—1967
Scattering of plane wave by infinite hemicylindrical bosses with random radii on a plane surface. H. S. Hayre and W. A. Klos. **41**: 1579—1967
Study of sound decay using ray-tracing techniques on a digital computer. B. S. Atal and M. R. Schroeder. **41**: 1598—1967

Errata

Medium- and far-field expressions for velocity potential of circular plane piston. [J. Acoust. Soc. Am. **39**, 1142 (1966)]. A. O. Williams, Jr. **41**: 1549—1967

11.8 Physical Effects of Sound. (See also 12.11.)

Papers

Analysis of acoustic-emission strain waves. D. M. Egle and C. A. Tatro. **41**: 321—1967
Measurement of acoustic resistance at sound-pressure levels to 171 dB. P. A. Marino, Jr., N. Bohn, and G. D. Garrison. **41**: 1325—1967
Mode conversion in the long-wavelength limit. James N. Lange. **41**: 1449—1967
Transient electron-inertia field produced by a strain pulse. J. D. Kennedy and C. W. Curtis. **41**: 328—1967

11.9 Sounds in the Atmosphere

Papers

Guided infrasonic modes in a temperature- and wind-stratified atmosphere. Allan D. Pierce. **41**: 597—1967
Instrumentation for an array of infrasonic- and hydromagnetic-wave sensors. Uri Fehr and L. C. McGahan. **41**: 587—1967

Technical Notes and Research Briefs

Jungle acoustics. **41**: 1556—1967

Abstracts

Analog system for analyzing infrasonic signals monitored in field experimentation. L. C. McGahan and Uri Fehr. **41**: 1599—1967
Approaches to the design of a temperature-independent adjustable fluid-flow resistor. A. J. Bedard, Jr. **41**: 1600—1967
Continuous surface-pressure waves and troposphere dynamics. J. M. Young and H. S. Bowman. **41**: 1600—1967
Investigation of the nature and source of infrasonic noise in a wind field. Gerald G. Maxwell. **41**: 1599—1967
Propagation of sound from airport ground operations. Peter A. Franken and Dwight E. Bishop. **41**: 1610—1967
Radiation of sound by surface waves. Richard K. Cook. **41**: 1580—1967
Seismic and acoustic waves from a meteor. Kenneth C. Bayer and James N. Jordan. **41**: 1580—1967
VLF adjustable acoustic band-pass filter microphone system. Bob R. Beavers and Norman J. Meyer. **41**: 1600—1967

12 MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)

12.1 General, Unclassified

Abstracts

Aeolian tones associated with resonant vibration. Patrick Leehey. **41**: 1604—1967

News

International Symposium on the Damping of Vibrations of Plates by Means of a Layer, 14–15 September 1967, Louvain, Belgium. **41**: 726—1967

12.3 Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)

Papers

Average control for sinusoidal- and random-vibration testing. Theron Usher, Jr. **41**: 840—1967
Improved transfer standard for vibration pickups. E. Jones, D. Lee, and S. Edelman. **41**: 354—1967

Abstracts

Determination of resonant modes in piezoelectric plates. W. J. Spencer. **41**: 1587—1967
Mobility of a long cylindrical shell. J. L. Palladino and V. H. Neubert. **41**: 1587—1967

12.3f **Mechanical Filters. (See also 5.4.)**

Abstracts

Determination of resonant modes in piezoelectric plates. W. J. Spencer. **41**: 1587—1967

12.3i **Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)**

Papers

Measurement of acoustic resistance at sound-pressure levels to 171 dB. P. A. Marino, Jr., N. Bohn, and G. D. Garrison. **41**: 1325—1967

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Effectiveness of two-particle impact dampers. **41**: 1553—1967

Abstracts

Torque on a finite disk executing damped harmonic oscillations in a viscous fluid near a rigid boundary. F. C. De Metz. **41**: 1605—1967

Patents

Lap-lox fastener. John R. McKee, Jr. **41**: 552—1967

Shock absorbers or vibration dampers. William Kenneth Wasdell. **41**: 551—1967

Vibration absorber. Kenneth C. Mard and Anthony J. Pichnarcik. **41**: 551—1967

Vibration isolating system. John Bochan. **41**: 552—1967

12.3p **Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)**

Papers

Improved transfer standard for vibration pickups. E. Jones, D. Lee, and S. Edelman. **41**: 354—1967

Patents

Vibration protective device. Chester A. Tudbury. **41**: 552—1967

12.3z **Mechanical-Impedance Measurement. (See also 5.3 and 11.5.)**

Papers

Failure detection by mechanical impedance techniques. R. B. Tatge. **41**: 1196—1967

Measurements of the effect of geometric scale on structural impedance and radiated sound. Fred Schloss and Wayne T. Reader. **41**: 1193—1967

12.7 **Theory of Vibrating Systems. (See also 11.7 and 11.1.5.)**

Papers

Complete solutions of the "Webster" horn equation. E. Eisner. **41**: 1126—1967

Forced vibrations of submerged spheroidal shells. Timothy Yen and Frank DiMaggio. **41**: 618—1967

Mechanical immittance- and transmission-matrix concepts. Sheldon Rubin. **41**: 1171—1967

Mechanical impedance and mobility concepts. G. J. O'Hara. **41**: 1180—1967

Normalized numerical solutions for Rayleigh's frequency equation. D. S. Potter and C. D. Leedham. **41**: 148—1967

Numerical calculation of some response statistics for a linear oscillator under impulsive-noise excitation. R. A. Janssen and R. F. Lambert. **41**: 827—1967

Reflection of wave trains in semi-infinite plates. Peter J. Torvik. **41**: 346—1967

Response of a linear system to nonstationary shot noise. T. C. Chen. **41**: 822—1967

Solid torsional horns. Robert W. Pyle, Jr. **41**: 1147—1967

Some energy bounds for randomly excited beams. A. H. Gray, Jr. **41**: 615—1967

Structural and electromechanical interaction in the multiple exciter technique for random vibration testing. Marc Trubert. **41**: 1185—1967

Study of small-amplitude vibrations of clamped rectangular plates using polynomial approximations. Patricio A. Laura and Bernard F. Saffell, Jr. **41**: 836—1967

Thickness/twist vibrations of a truncated, linearly tapered, crystal strip. C. B. Loutzenheiser and W. J. Denkmann. **41**: 962—1967

Transient response of an elastic shell in plane strain. L. M. Keer, J. F. Fleming, and G. Herrmann. **41**: 358—1967

Transverse thickness modes in **BT**-cut quartz plates. W. J. Spencer. **41**: 994—1967

Letters to the Editor

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Further comments on Fitzgerald resonances. I. L. Hopkins. **41**: 861—1967

Resonance conditions for an elastically connected double-plate system due to a cyclic moving load. P. G. Kessel. **41**: 1552—1967

Vibrations of a circular plate supported by a concentric ring of arbitrary radius. R. Y. Bodine. **41**: 1551—1967

Abstracts

Approximations in nonsymmetric shell vibrations. Edward W. Ross, Jr. **41**: 1587—1967

Dynamical interaction across the common boundary of a hemispherical shell and a cylindrical shell, smoothly joined. Extension to general axisymmetric shells. J. F. Schipper. **41**: 1605—1967

Energy method for determining natural frequencies and associated mode shapes of truncated conical and parabolic shells. P. P. Soo. **41**: 1606—1967

Joint acceptance for cylinders. Alan R. Wenzel. **41**: 1605—1967

Mobility of a long cylindrical shell. J. L. Palladino and V. H. Neubert. **41**: 1587—1967

Modal analysis of the response of structures to nonhomogeneous, nonstationary, random fields. W. C. Lennox and F. P. Beer. **41**: 1605—1967

On the effect of spin on the vibration characteristics of cylindrical shells. Leonard Kurzweil and Yechiel Shulman. **41**: 1605—1967

On high-frequency vibrations of thin, elastic shells. Arturs Kalnins and Carl F. Long. **41**: 1587—1967

On wave propagation in an elastic plate with nonmixed edge conditions. Julius Miklowitz. **41**: 1587—1967

Recent developments in the mathematical theory of quartz-crystal resonators. R. D. Mindlin. **41**: 1586—1967

Response of a simply supported beam to a three-dimensional reverberant acoustic field. Malcolm J. Crocker and Robert W. White. **41**: 1604—1967

Torque on a finite disk executing damped harmonic oscillations in a viscous fluid near a rigid boundary. F. C. De Metz. **41**: 1605—1967
Transient axisymmetric motion of a finite thick hollow elastic cylinder. G. Cinelli and W. Pilkey. **41**: 1605—1967

Book Reviews

Particle Waves and Deformation in Crystalline Solids. Edwin R. Fitzgerald. (Reviewed by Warren P. Mason.) **41**: 543—1967

12.10 Seismology. Geophysical Prospecting. Seismographs

Technical Notes and Research Briefs

Explosive gas sound source. **41**: 1558—1967

Abstracts

Analytical review of the electromechanical piston and the modified Moore variometer used in infrasound studies. B. Ben-Ary and Uri Fehr. **41**: 1599—1967
Digital geoacoustic system technology. Kenneth E. Burg. **41**: 1598—1967
Instrumentation role in the observation of geoacoustical phenomena from artificial sources. Uri Fehr. **41**: 1599—1967
Seismic and acoustic waves from a meteor. Kenneth C. Bayer and James N. Jordan. **41**: 1580—1967
Seismic waves generated by sonic booms—a geoacoustical problem. A. F. Espinosa, W. V. Mickey, and P. J. Sierra. **41**: 1600—1967
Systems and methods in statistical analysis and reduction of geoacoustical and geomagnetic data. Wallace F. Tolman, Robert Crolene, and Uri Fehr. **41**: 1598—1967

Patents

Deep well sonic pumping process and apparatus. Albert G. Bodine, Jr. **41**: 1574—1967
Detachable mount for magnetostrictive detector. Lawrence D. Zepernick. **41**: 271—1967
Oscillator means for sonic pile drivers. Albert G. Bodine, Jr. **41**: 901—1967
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Sonic drive with pneumatic capacitance. A. G. Bodine. **41**: 552—1967
Sonic techniques and apparatus for earth boring. Albert G. Bodine, Jr. **41**: 901—1967
Vibratory apparatus for penetrating earth material and the like. E. V. Bergstrom. **41**: 763—1967

12.11 Effect of Sound on Structures. Fatigue. (See also 11.8.)

Abstracts

Modal analysis of the response of structures to nonhomogeneous, nonstationary, random fields. W. C. Lennox and F. P. Beer. **41**: 1605—1967
On predicting fluctuating pressures at a wall beneath a turbulent boundary layer. C. M. Ailman. **41**: 1583—1967
Response of a simply supported beam to a three-dimensional reverberant acoustic field. Malcolm J. Crocker and Robert W. White. **41**: 1604—1967

12.12 Effect of Sound on Structures. Fatigue. (See also 11.8.)

Papers

Average control for sinusoidal- and random-vibration testing. Theron Usher, Jr. **41**: 840—1967
Far-field sound radiation from randomly vibrating structures. Joshua E. Greenspon. **41**: 1201—1967
Numerical calculation of some response statistics for a linear oscillator under impulsive-noise excitation. R. A. Janssen and R. F. Lambert. **41**: 827—1967
Pressure correlation for a cylinder in a diffuse sound field. Alan R. Wenzel. **41**: 1459—1967
Response of a linear system to nonstationary shot noise. T. C. Chen. **41**: 822—1967
Some energy bounds for randomly excited beams. A. H. Gray, Jr. **41**: 615—1967
Structural and electromechanical interaction in the multiple exciter technique for random vibration testing. Marc Trubert. **41**: 1185—1967

13 UNDERWATER SOUND

13.1 General, Unclassified

Technical Notes and Research Briefs

Unique submarine model at DTMB. **41**: 871—1967

News

NATO-Marina Italiana advanced study institute on stochastic problems in underwater sound propagation. **41**: 888—1967
Ocean communications featured. **41**: 1562—1967

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

Papers

Axial focusing of sound in the SOFAR channel. A. O. Williams, Jr., and William Horne. **41**: 189—1967
Comparison of curvilinear and linear profile approximation in the calculation of underwater sound intensities by ray theory. Melvin A. Pedersen and David F. Gordon. **41**: 419—1967
Epstein normal-mode model of a surface duct. H. P. Bucker and Halcyon E. Morris. **41**: 1475—1967
Fluctuations and directionality in ambient sea noise. P. Rudnick and E. D. Squier. **41**: 1347—1967
Frequency dependence of reverberation in the ocean. Victor C. Anderson. **41**: 1467—1967
Long-range sound propagation in the South Tasman Sea. A. C. Kibblewhite and R. N. Denham. **41**: 401—1967
Practical model of shallow-water acoustic propagation. J. D. Macpherson and M. J. Daintith. **41**: 850—1967
Reflection and transmission of sound waves by a moving fluid layer. C. Yeh. **41**: 817—1967
Refracted/reflected ray transmissions in a divergent channel. Melvin J. Jacobson and John G. Clark. **41**: 167—1967
Shallow-water propagation under downward refraction conditions. Bernard F. Cole and Eugene M. Podeszwa. **41**: 1479—1967
Sound attenuation in liquid-solid mixtures. L. R. B. Duykers. **41**: 1330—1967

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Further measurements on the effect of ice cover on shallow-water ambient sea noise. F. A. Payne. **41**: 1374—1967

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Possible inertial period time dependence of signal transmission in the ocean. C. S. Clay. **41**: 524—1967

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Acoustical measurement of fluid flow. **41**: 535—1967

Abstracts

Frequency-dependent propagation loss in the deep sea. R. J. Urick and Maurice Blaik. **41**: 1616—1967

Phase variation of sound in the Florida Straits. John C. Steinberg. **41**: 1617—1967

Prediction model for shallow-water sound transmission. R. J. Urick. **41**: 1616—1967

Propagation loss in a heterogeneous medium bounded by a rough surface. L. L. Higgins. **41**: 1617—1967

Wave-induced fluctuations in shallow-water sound propagation. P. J. Westervelt, H. Halpin, and A. O. Williams, Jr. **41**: 1617—1967

13.3 Velocity of Sound in Water. Refraction. Doppler Effect

Papers

Axial focusing of sound in the SOFAR channel. A. O. Williams, Jr., and William Horne. **41**: 189—1967

Comparison of curvilinear and linear profile approximation in the calculation of underwater sound intensities by ray theory. Melvin A. Pedersen and David F. Gordon. **41**: 419—1967

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Shallow-water propagation under downward refraction conditions. Bernard F. Cole and Eugene M. Podeszwa. **41**: 1479—1967

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Possible inertial period time dependence of signal transmission in the ocean. C. S. Clay. **41**: 524—1967

Abstracts

Acoustic field in an inhomogeneous medium with boundaries. Roy L. Deavenport. **41**: 1617—1967

Acoustic propagation in a continuously refracting medium. D. K. Y. Ai and L. P. Solomon. **41**: 1617—1967

Contour charts of SOFAR speed and axis depth in the Pacific Ocean. Rockne H. Johnson and Roger A. Norris. **41**: 1618—1967

Precision *in situ* measurements of temperature, salinity, pressure, and sound speed on DEEPSTAR dives. K. V. Mackenzie. **41**: 1618—1967

Propagation loss in a heterogeneous medium bounded by a rough surface. L. L. Higgins. **41**: 1617—1967

Ray representation of diffraction effects in the spit-beam sound field. E. L. Murphy. **41**: 1617—1967

13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

Papers

Cross section of a circular cylinder with an impedance-loaded strip along a generatrix. M. J. Deschenes. **41**: 1453—1967

Echoes from hollow aluminum spheres in water. K. Jerome Diercks and R. Hickling. **41**: 380—1967

Model studies on the scattering of acoustic waves from a rough surface. C. W. Horton, Sr., S. K. Mitchell, and G. R. Barnard. **41**: 635—1967

Monostatic reflection from a rigid rectangular plane. Werner G. Neubauer and Louis R. Dragonette. **41**: 656—1967

Reflection and transmission of sound waves by a moving fluid layer. C. Yeh. **41**: 817—1967

Refracted/reflected ray transmissions in a divergent channel. Melvin J. Jacobson and John G. Clark. **41**: 167—1967

Resonance scattering of sound by a small gaseous object of arbitrary form. M. S. Steinberg. **41**: 1352—1967

Shadowing of randomly rough surfaces. R. J. Wagner. **41**: 138—1967

Theoretical studies on the scattering of acoustic waves from a rough surface. C. W. Horton, Sr., and T. G. Muir. **41**: 627—1967

Abstracts

Acoustic target strengths of some marine animals. William E. Batzler. **41**: 1589(T)—1967

Experimental investigation of a sub-bottom reflecting layer in the deep ocean. G. R. Fox. **41**: 1596—1967

Omnidirectional scattering of acoustic waves from time-varying rough surfaces. B. E. Parkins. **41**: 1596—1967

Propagation loss in a heterogeneous medium bounded by a rough surface. L. L. Higgins. **41**: 1617—1967

Underwater sound scattering from a family of modeled rough surfaces. Stephen K. Mitchell. **41**: 1596—1967

13.5 Interference. Diffraction

Papers

Diffraction of acoustic pulses by obstacles of arbitrary shape with a Robin boundary condition. Richard Paul Shaw. **41**: 855—1967

Technical Notes and Research Briefs

Absorption of sound in liquids by porous metals. R. M. Fand, C. M. Gogos, and F. J. Jackson. **41**: 530—1967

Abstracts

Ray representation of diffraction effects in the spit-beam sound field. E. L. Murphy. **41**: 1617—1967

13.6 Scattering. Reverberation in Water

Papers

Calculation of an average backscattering coefficient of a scattering layer in a frequency band. A. Mohammed. **41**: 177—1967

Cross section of a circular cylinder with an impedance-loaded strip along a generatrix. M. J. Deschenes. **41**: 1453—1967

Diffraction of acoustic pulses by obstacles of arbitrary shape with a Robin boundary condition. Richard Paul Shaw. **41**: 855—1967

Echoes from hollow aluminum spheres in water. K. Jerome Diercks and R. Hickling. **41**: 380—1967

Frequency dependence of reverberation in the ocean. Victor C. Anderson. **41**: 1467—1967

Model studies on the scattering of acoustic waves from a rough surface. C. W. Horton, Sr., S. K. Mitchell, and G. R. Barnard. **41**: 635—1967

Resonance of a bubble on an infinite rigid boundary. J. E. Blue. **41**: 369—1967

Resonance scattering of sound by a small gaseous object of arbitrary form. M. S. Steinberg. **41**: 1352—1967

Shadowing of randomly rough surfaces. R. J. Wagner. **41**: 138—1967

Specular scattering of underwater sound from a wind-driven surface. Herman Medwin. **41**: 1485—1967

Theoretical studies on the scattering of acoustic waves from a rough surface. C. W. Horton, Sr., and T. G. Muir. **41**: 627—1967

Volume-scattering measurements at 12 kc/sec in the Western Pacific. W. E. Batzler and R. J. Vent. **41**: 154—1967

Abstracts

Acoustic target strengths of some marine animals. William E. Batzler. **41**: 1589(T)—1967

Backscattering from the deep sea bed at small grazing angles. J. P. Buckley and R. J. Urick. **41**: 1596—1967

Measurement of the frequency spectrum of pulsed sine wave reverberation. Edward P. Garabed. **41**: 1596—1967

Microbubbles as a source of diffuse scatter. William R. Turner. **41**: 1596—1967

Omnidirectional scattering of acoustic waves from time-varying rough surfaces. B. E. Parkins. **41**: 1596—1967

One biologist's view of the so-called 'deep scattering layers.' Richard H. Backus. **41**: 1589(T)—1967

Range-doppler analysis of underwater acoustic backscatter. R. S. Thomas. **41**: 1596—1967

Reverberation from biological scatterers in the ocean volume. R. P. Chapman. **41**: 1589(T)—1967

Spatial and spectral dependence of acoustic reverberation. Victor C. Anderson. **41**: 1589(T)—1967

Underwater sound scattering from a family of modeled rough surfaces. Stephen K. Mitchell. **41**: 1596—1967

Volume-scattering measurements in the western North Atlantic and Gulf of Mexico. Peter Van Schuyler. **41**: 1597—1967

13.7 Radiation from Objects Vibrating under Water. Acoustical and Mechanical Impedance. (See also 5.3, 11.5, and 12.3z.)

Papers

Computation of farfield radiation patterns by use of a general integral solution of the time-dependent scalar wave equation. Horace G. Ferris. **41**: 394—1967

Integral equation method for radiation from vibrating bodies. Lawrence G. Copley. **41**: 807—1967

Nearfield pressure for an infinite phased array of circular pistons. V. Mangulis. **41**: 412—1967

Surface pressures generated by pistons on large spherical and cylindrical baffles. M. C. Junger. **41**: 1336—1967

Transient solution for sound radiated into a viscous fluid. David T. Blackstock. **41**: 1312—1967

Abstracts

Design of optimal transducer arrays. D. F. Suchman and A. D. Waren. **41**: 1607—1967

Effect of baffle width on beam patterns of planar arrays. Richard E. Douglass and George J. Gruber. **41**: 1607—1967

Maximum array gain versus optimum pattern. Clair J. Becker. **41**: 1607—1967

Near-field and far-field radiation from an experimental electrically steered planar array. Gordon E. Martin. **41**: 1607—1967

Piston-type spherical radiation. C. T. Molloy and K. L. Miller. **41**: 1606—1967

Spherical radiator encased in a thick shell. C. T. Molloy and G. C. K. Yeh. **41**: 1606—1967

13.8 Sound Generation by Liquid Motion, Bubbles, Turbulence, Splashes. (See also 13.12.)

Papers

Acoustic turbulent water-flow tunnel. George F. Carey, John E. Chlupsa, and Howard H. Schloemer. **41**: 373—1967

Resonance of a bubble on an infinite rigid boundary. J. E. Blue. **41**: 369—1967

Resonance scattering of sound by a small gaseous object of arbitrary form. M. S. Steinberg. **41**: 1352—1967

Abstracts

Basic mechanisms in aerosol production. C. W. Smith. **41**: 1583—1967

Exact formula for the expansion time of a deep-fired explosion bubble. David Epstein. **41**: 1584—1967

Formation of liquid jets during cavitation bubble collapse. Anthony Eller. **41**: 1583—1967

Microbubbles as a source of diffuse scatter. William R. Turner. **41**: 1596—1967

Nonlinear bubble oscillations. Louis P. Solomon and Milton S. Plesset. **41**: 1583—1967

Second-order fields near a pulsating source. Robert K. Gould. **41**: 1583—1967

13.9 Noise in Water, Ship Noise. Flow Noise, Biological Noises

Papers

Acoustic turbulent water-flow tunnel. George F. Carey, John E. Chlupsa, and Howard H. Schloemer. **41**: 373—1967

Fluctuations and directionality in ambient sea noise. P. Rudnick and E. D. Squier. **41**: 1347—1967

Unusual low-frequency signals observed in New Zealand waters. A. C. Kibblewhite, R. N. Denham, and D. J. Barnes. **41**: 644—1967

Letters to the Editor

Ambient noise under sea ice and further measurements of wind and temperature dependence. A. R. Milne, J. H. Ganton, and D. J. McMillin. **41**: 525—1967

Array gain for the case of directional noise. Benjamin F. Cron and Robert L. Shaffer. **41**: 864—1967

Further measurements on the effect of ice cover on shallow-water ambient sea noise. F. A. Payne. **41**: 1374—1967

Abstracts

On the statistics of ambient noise. Elizabeth M. Arase and T. Arase. **41**: 1597—1967

Optimum and suboptimum bearing estimation for deterministic and random signals in normal noise fields. David Middleton. **41**: 1607—1967

13.10 Underwater Macrosonics. Explosions. Distortion. (See also 14.2 and 12.5.)

Papers

Approximate methods of estimating energy spectra of line charges fired under water. John P. Slifko. **41**: 182—1967

Abstracts

Backscattering from the deep sea bed at small grazing angles. J. P. Buckley and R. J. Urick. **41**: 1596—1967

Frequency-dependent propagation loss in the deep sea. R. J. Urick and Maurice Blaik. **41**: 1616—1967

Nonlinear bubble oscillations. Louis P. Solomon and Milton S. Plesset. **41**: 1583—1967

Patents

Free-bubble gas sound source. David T. Barry. **41**: 1574—1967

13.11 Instruments Relating to Underwater Sound

Letters to the Editor

Array gain for the case of directional noise. Benjamin F. Cron and Robert L. Shaffer. **41**: 864—1967

Patents

Apparatus for measuring the velocity of acoustical waves. William C. Parenti. **41**: 272—1967

Communication system. Jack E. Bridges. **41**: 1412—1967

Control apparatus. Gordon A. Vincent. **41**: 272—1967

Depth measuring apparatus. Samuel Pure. **41**: 272—1967

Sonar performance computer. Lloyd T. Einstein, Wallace C. Nordstrom, and William A. Von Winkle. **41**: 1412—1967

Sonar slide rule. Daniel Barron. **41**: 553—1967

Transmission of telephony spectrum over VLF channels. Cletus M. Dunn. **41**: 1411—1967

Ultrasonic inclination meter. Tetsuichi Kaneko. **41**: 764—1967

Underwater telephone. Charles R. Brock and Reginald J. Cyr. **41**: 552—1967

13.11n Navigational Instruments Using Underwater Sound. Underwater-Listening and Echo-Ranging Devices. Sonar.

Papers

Computation of farfield radiation patterns by use of a general integral solution to the time-dependent scalar wave equation. Horace G. Ferris. **41**: 394—1967

DIMUS processing with seven-element active-sonar arrays. Winslow R. Remley, Donald V. E. Upton, and Donald L. Del Giorno. **41**: 439—1967

Evaluation of the performance of active sonar receivers. James F. Bartram. **41**: 767—1967

Instrumentation for an array of infrasonic- and hydromagnetic-wave sensors. Uri Fehr and L. C. McGahan. **41**: 587—1967

Nearfield pressure for an infinite phased array of circular pistons. V. Mangulis. **41**: 412—1967

Abstracts

Maximum array gain versus optimum pattern. Clair J. Becker. **41**: 1607—1967

Design of optimal transducer arrays. D. F. Suchman and A. D. Waren. **41**: 1607—1967

Effect of baffle width on beam patterns of planar arrays. Richard E. Douglass and George J. Gruber. **41**: 1607—1967

Effect of a negative capacitance termination on hydrophone sensitivity. Raymond Stelting. **41**: 1608—1967

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Fischer, Norman A. 3,210,482. Pressure pad insert for tape cartridges. **42:** 552—1967
Fitch, Arthur H. 3,317,862. Off-axis elastic wave delay device with spherical reflections. **42:** 925—1967
Fitzgerald, John V. 3,308,650. Acoustic spectrometer. **42:** 570—1967
Flanagan, James L. 3,268,660. Synthesis of artificial speech. **42:** 930—1967
—— 3,291,912. Artificial larynx. **42:** 930—1967
Fletcher, John L. and Arthur J. Riopelle. 3,271,520. Acoustic reflex ear protective system. **42:** 924—1967
Ford, Walter B. and Gerald R. Schlechte. 3,277,438. Method and apparatus for programmed gain control of a seismic amplifier. **42:** 1135—1967
Fortman, William K. 3,326,467. Atomizer with multi-frequency exciter. **42:** 935—1967
Foster, Theodore C. and Joseph E. Smith, Jr. 3,234,338. Electromagnetic transducers. **42:** 713—1967
Fox, Edward C. 3,229,048. Recording system. **42:** 1362—1967
Fox, Frederick L. 3,296,371. Voice encoder. **42:** 928—1967
Freeland, William. 3,317,139. Devices for generating and delivering mechanical vibrations to a nozzle. **42:** 936—1967
Freeman, Alfred B. 3,236,931. Electronic musical instrument. **42:** 1131—1967
Frelich, Paul D. (see Farr, Harold K.). **42:** 325—1967
—— (see Lustig, Howard E.). **42:** 325—1967
French, Ernest Frederick (see Rankin, Alexander Bryce Calder). **42:** 567—1967
Frisz, John (see Wood, John F.). **42:** 555—1967
Froman, Bernard (see Daubresse, Guy). **42:** 720—1967
Frosch, Robert A. (see Clay, Clarence S., Jr.). **42:** 572—1967
Fukamachi, Masahiko. 3,287,505. Magnetic recording and reproducing system. **42:** 556—1967
Fyler, Norman F. 3,325,777. Image forming apparatus. **42:** 1142—1967

G

Galetzky, Hyman. 3,319,505. Picks for musical instruments with improved grip including with improved tone. **42:** 1130—1967
Gallagher, Edgar J., Jr. 3,057,450. Noiseless typewriter or the like. **42:** 1134—1967
Geddes, David A. 3,286,031. Voice actuated device. **42:** 934—1967
George, William B., John C. Hill, David Lee Snider, and Anthony Gumienny. 3,309,083. Selective sound responsive amusement or exercising devices. **42:** 708—1967
Gerig, John S. (see Williams, Richard E.). **42:** 311—1967
Germano, Carmen P. 3,243,614. Stereophonic record transducers. **42:** 549—1967
Geyger, William A. 3,213,203. Double integrator magnetic amplifier output circuit. **42:** 553—1967
Gilbert, Anna Marie. 3,301,119. Drumstick. **42:** 717—1967
Giuffre, Joseph (see Bakke, Ole G.). **42:** 1367—1967
Glass, Marvin I., Carl Ayala, and Gordon A. Barlow. 3,299,762. Music box. **42:** 558—1967
——, **Carl Ayala, and Gordon A. Barlow.** 3,299,763. Music box. **42:** 558—1967
——, **Gordon A. Barlow, and Burton C. Meyer.** 3,290,979. Musical device. **42:** 558—1967
Glorig, Aram. 3,301,253. Ear protector. **42:** 547—1967
Godbey, Josiah J. 3,239,803. Variable capacitance geophone assembly for seismic prospecting. **42:** 316—1967
Godby, John H. 3,310,902. Sonic fishing lure. **42:** 720—1967
Goehl, Earl G. 3,219,990. Spherical transducer for magnetic tape recording. **42:** 711—1967
Gold, Nathan. 3,294,918. Electronic conversions of speech. **42:** 931—1967
Golden, Sidney. 3,279,245. Transducer. **42:** 717—1967
Goodwin, Leslie E. (see Ross, John D.). **42:** 937—1967
Goossen, George N. and Sidney S. Damron. 3,265,818. Signal system optimization in magnetic tape apparatus for processing continuous nonpictorial wideband signals. **42:** 556—1967
Gordon, George A. D. 3,338,235. Ultrasonic therapeutic device with recording apparatus. **42:** 1369—1967
Gouilloud, Michel Marie Albert and Gilbert Jean Marchand. 3,277,440. Methods and apparatus for recording well logging data on magnetic tape utilizing recorded reference signals for control purposes. **42:** 940—1967
Gould, Albert. 3,283,441. Wind-driven noise-making device. **42:** 312—1967
Gracey, Yale W. 3,241,419. Audio frequency-responsive lighting display. **42:** 723—1967
Grado, Joseph F. 3,292,936. Phonograph stylus. **42:** 550—1967
Graser, Michael, Jr. 3,234,485. Electronic musical instrument tone generator having vibrato effect. **42:** 1131—1967
Graves, Howard Kennedy. 3,236,138. Sounding board for stringed musical instrument. **42:** 1129—1967
Greening, John P. and Ralph A. Doubt. 3,225,327. Rotational seismometer. **42:** 314—1967
Gregory, Robert F. (see Bogs, Charles W.). **42:** 570—1967
Grimes, David D. 3,047,253. Wing vibration damper. **42:** 938—1967
Grinstead, Carl E. 3,311,703. Microphone with low frequency filter. **42:** 724—1967
Grohe, Bruce H. and Charles E. Walker. 3,311,870. Solid state proportional commutator. **42:** 721—1967
Gross, Kenneth W. (see Barber, Beno). **42:** 1367—1967
Gross, Leo. 3,318,129. Method of ultrasonic drawing of sheet metal. **42:** 718—1967
Grote, Walter F. and Edward J. Kimmel. 3,248,481. Telephone answering device. **42:** 566—1967
Gruczelak, Norman P. (see Wang, Ben C.). **42:** 715—1967
Guerth, Fritz A. 3,306,987. Apparatus for compensating for magnetic tape speed variations during playback. **42:** 716—1967
Gulton, Edith M. (see Howatt, Glenn N.). **42:** 548—1967
Gumienny, Anthony (see George, William B.). **42:** 708—1967
Gurney, Robert D. (see Lehner, Francis E.). **42:** 317—1967

H

Hagedoorn, Johan G. (see Elskamp, Petrus T.). **42:** 316—1967
Haggard, Samuel E. 3,251,028. Geophone. **42:** 939—1967
Haigler, Edmund D. 3,314,582. Ultrasonic scissors bonding instrument. **42:** 567—1967
Hall, Frederick S. (see Savage, Edwin W.). **42:** 566—1967
Hall, George R. (see Cookerly, Jack C.). **42:** 562, 564, 1134—1967
Halliday, William (see Hopkin, Peter Roy). **42:** 945—1967
Hammond, Robert J. 3,201,132. Drive yoke for phonograph pickups. **42:** 709—1967
Hanert, John M. 3,223,770. Legato percussion apparatus for electrical musical instruments. **42:** 565—1967
—— 3,229,022. Dead key eliminator electrical musical instrument. **42:** 1131—1967
—— 3,240,858. Electrical musical instrument. **42:** 1132—1967

Hare, Harold H. 3,204,722. Electronic organ speaker with tremolo effect. **42:** 563—1967
Harmon, Donald K. 3,180,918. Tone generator system. **42:** 311—1967
Harris, R. V. 3,325,781. Dual transducer probe for ultrasonic testing. **42:** 720—1967
Hass, William H. (see Peterson, Richard H.). **42:** 563—1967
Haushalter, Fred L. 3,041,889. Vibration dampener. **42:** 937—1967
—— 3,058,208. Method of making a vibration dampener. **42:** 939—1967
Hawkins, James E. 3,296,588. Reproducing and translating apparatus. **42:** 548—1967
Hawkins, Robert D. 3,049,344. Vibration and shock isolator. **42:** 938—1967
Hayek, Arthur F. (see Appel, Henry W.). **42:** 568—1967
Hayes, Harvey C., Raymond L. Steinberger, Keith H. Odenweller, and George R. Vernon. 3,319,735. Mechanical noisemaker. **42:** 1141—1967
Heath, Roy T. 3,312,788. Shielded tape transport. **42:** 557—1967
Heidrich, Stepen L. 3,317,000. Electroacoustic transducer. **42:** 926—1967
—— 3,324,966. Electroacoustic transducers. **42:** 1127—1967
Henry, Pierre. 3,303,605. Doll having movable head and gravity actuated sounding means. **42:** 718—1967
Henry-Baudot, Jacques. 3,230,406. High frequency electromechanical generator. **42:** 1131—1967
Herold, Thomas R. (see Ross, John D.). **42:** 937—1967
Herr, John A. (see Roll, John B.). **42:** 1363—1967
Hersey, John B. and Willard Dow. 3,299,398. Deep water radio-acoustic buoy. **42:** 325—1967
Heytow, Solomon (see Cutler, Stanley). **42:** 1131—1967
Hill, John C. (see George, William B.). **42:** 708—1967
Hines, Harley F. and Edward R. Prince, Jr. 3,292,141. Marine normal moveout determination. **42:** 1138—1967
Hirst, Archie John. 3,062,072. Torsional vibration dampers. **42:** 1135—1967
Hluszko, John. 3,229,355. Method of making a magnetic transducer head. **42:** 712—1967
Hobson, Leland S. 3,273,112. Tuned seismic wave communication system. **42:** 321—1967
Hohos, Joseph A. 3,187,618. Organ pre-set. **42:** 309—1967
Hollingsworth, R. Lee. 3,236,942. High speed video tape recording. **42:** 713—1967
Hollywood, John M. (see Bauer, Benjamin B.). **42:** 708—1967
Holman, Howard E., John R. Brand and Charles F. Cordier. 3,227,799. Pedal switching sustain and cancellation circuit for an electronic musical instrument. **42:** 1130—1967
——, **John R. Brand, and Marvin Korinke.** 3,204,507. Electronic organ having tone generators with two different outputs. **42:** 563—1967
Hopkin, Peter Roy and William Halliday. 3,316,530. Echo-sounding apparatus with stabilized narrow beam. **42:** 945—1967
Hopner, Emil. 3,293,376. Communication system utilizing frequency differential time delay. **42:** 928—1967
Hopping, Alving S. 3,322,877. Electrical musical instrument having fingerboard with continuously variable finger tone spacing. **42:** 1363—1967
Horan, John J. 3,325,780. Flexural transducers. **42:** 1145—1967
Horstkorta, Donald A. 3,211,842. Tape transport with concentric coils rotating at different speeds. **42:** 552—1967
Hoshinomiya, Nobumitsu. 3,219,746. Tone controller. **42:** 564—1967
Hoskins, Hartley. 3,290,644. Seismic systems for investigating subterranean conditions. **42:** 1137—1967
Hottman, Clarence E. 3,235,026. Method for determining formation pressures. **42:** 315—1967
Howatt, Glenn N. and Edith M. Gulton. 3,163,783. High capacity transducer unit. **42:** 548—1967
Hubbard, Charles L. (see Crook, Troy N.). **42:** 319—1967
Huckabay, William B., Neil A. Moore, and William H. Parker. 3,251,027. Seismic exploration system. **42:** 317—1967
—— **and William H. Parker.** 3,286,225. Continuous marine seismic surveying. **42:** 942—1967
Hudson, John L. (see Parrack, Alvin L.). **42:** 317—1967
Huff, Francis E. (see Kroamer, Vernon W.). **42:** 571—1967
Hugel, Fred (see Miville, Charles A.). **42:** 715—1967
Hughes, Jimmie R. (see Newton, Robert A.). **42:** 1136—1967
Huppert, Roger Emil. 3,206,555. Apparatus for the automatic reproduction of tape recordings. **42:** 551—1967
Hussey, Kenneth (see Welsh, Alfred Willis). **42:** 325—1967
Hutchison, John S. (see Stark, William J.). **42:** 317—1967

I

Ide, John M. 3,296,582. Underwater listening aid for submerged personnel. **42:** 1142—1967
Ikrath, Kurt. 3,296,589. Seismic transmission-reception system. **42:** 1138—1967
—— 3,302,745. Generation and reception of low frequency seismic waves. **42:** 943—1967
—— 3,302,746. Self-excited seismic systems. **42:** 943—1967
——, **Gordon W. Kerr, and Wilhelm A. Schneider.** 3,268,029. Seismic multivibrator. **42:** 320—1967
Irons, Ronald E. (see Cefaly, Ralph). **42:** 307—1967
Isaak, Robert D. (see Klund, William E.). **42:** 1369—1967
Isemura, Shinichi. 3,224,782. Apparatus for transducing from a stationary record. **42:** 711—1967
Itria, Oswald A. (see Parrack, Alvin L.). **42:** 1140—1967

J

Jacke, Stanley E. and Henry Biagini. 3,328,610. Sonic wave generator. **42:** 929—1967
Jacoby, Marvin. 3,290,692. Magnetic storage disc and drum. **42:** 557—1967
Janisio, Adam J. 3,188,389. Sound reverberating device. **42:** 926—1967
Jarrett, Lorenzo E., Jr. (see Brown, Graydon L.). **42:** 323—1967
Jefferys, Herbert Martin (see Buffery, Victor Charles). **42:** 945—1967
Jenny, Georges. 3,229,020. Electronic musical instrument. **42:** 1131—1967
—— 3,247,311. Electronic musical instrument. **42:** 1133—1967
—— 3,250,843. Electronic musical instrument with fluid pressure actuated volume control. **42:** 1133—1967
Jewett, Harold A. 3,209,637. Keyboards and accessories. **42:** 560—1967
—— 3,209,638. Keyboards and actions. **42:** 560—1967
—— 3,209,639. Keyboards and actions. **42:** 560—1967
Johnson, Lynn (see Carman, Frank C.). **42:** 561, 718—1967
Johnson, Wayne R. 3,207,854. Noise reduction method for recorded signals. **42:** 551—1967
—— **and Richard V. Roelofs.** 3,262,124. Transducing system. **42:** 715—1967
Jones, Edward M. 3,249,678. Photoelectric organ and appurtenances. **42:** 1133—1967
—— (see Brombaugh, John B.). **42:** 1132—1967
Jones, Thomas F., Jr. (see Trent, Horace M.). **42:** 569—1967
Jordi, Jean (see Daubresse, Guy). **42:** 720—1967
Joy, Ivan L. 3,228,231. Apparatus for signal reflection ultrasonic flaw testing. **42:** 935—1967

Jurschewitz, Paul Arthur Woldemar. 3,325,386. Polymerization process using ultrasonic vibrations. **42:** 934—1967

K

Kalfaian, Meguer V. 3,265,983. Amplitude equalizer of speech sound waves. **42:** 930—1967
—— 3,265,984. Symmetric peak amplitude equalizer of complex sound waves, without peak wave distortion. **42:** 930—1967
—— 3,322,898. Means for interpreting complex information such as phonetic sounds. **42:** 931—1967
Kampe, Joseph S. 3,293,781. Sound-wave operated mimicking device. **42:** 307—1967
Kallmann, Heinz E. 3,230,766. Ultrasonic flowmeter. **42:** 936—1967
Kartluke, Herbert (see Boyd, Charles A.). **42:** 719—1967
Keldenich, A. G. 3,228,233. Increasing the speed and thoroughness and economy of ultrasonic and other nondestructive testing of materials for detecting flaws or variances therein. **42:** 935—1967
Kelemencky, Monroe Robert and Peter Cushnie. 3,327,523. Inspection device for elongated objects. **42:** 937—1967
Kelly, John L., Jr. 3,328,525. Speech synthesizer. **42:** 933—1967
Kelly, Stanley. 3,303,904. Loudspeaker horns. **42:** 308—1967
—— 3,308,904. Loudspeakers. **42:** 308—1967
Kenney, James T. 3,283,845. Seismic prospecting system. **42:** 324—1967
Kerley, James J., Jr. 3,057,593. Shock and vibration mounts of the cable support type. **42:** 938—1967
—— 3,074,681. Protective enclosure shock and vibration type isolator mount. **42:** 1135—1967
Kerr, Gordon W. (see Ikrath, Kurt). **42:** 320—1967
Kienker, James E. (see Wyse, David S.). **42:** 572—1967
Kietz, Erhard K., Sidney S. Damron, and John F. Varnell, Jr. 3,304,377. Synchronizing system for video transducing apparatus utilizing composite information and pilot signals. **42:** 716—1967
—— (see Trost, Allen J.). **42:** 551—1967
Kihara, Nobutoshi. 3,235,670. Rotating head magnetic recorder with tape extension or shrinkage compensation. **42:** 713—1967
—— 3,239,603. Magnetic reproducing system. **42:** 714—1967
Kilmer, Lauren G. 3,235,027. Device for initiating seismic wave. **42:** 315—1967
—— 3,295,630. Carrier vehicle for seismic wave generator. **42:** 943—1967
— 3,306,392. Hydraulic system for seismic carrier vehicle. **42:** 1140—1967
—— 3,313,372. Gas tank holder for gas exploder seismic generators. **42:** 1140—1967
Kimmel, Edward J. (see Grote, Walter F.). **42:** 566—1967
King, Clifford M. 3,316,671. Whirling sound-making toy. **42:** 1126—1967
King, James C. and Neal C. Thomas. 3,310,720. Polarization process for ceramics. **42:** 928—1967
King, William H., Jr. 3,329,004. Coated piezoelectric analyzer. **42:** 1134—1967
Kirby, Robert A. 3,288,244. Seismic system. **42:** 1366—1967
Klann, Paul A. 3,247,351. Key action for organs including modular rotary wiping contact switch. **42:** 1133—1967
Klepper, David L. 3,299,206. Line-source loudspeakers. **42:** 307—1967
Kleesattel, Claus. 3,308,476. Resonant sensing devices. **42:** 313—1967
—— (see Balamuth, Lewis). **42:** 719—1967
Klein, Walter W. (see Stephenson, Lee P.). **42:** 321—1967
Kliewer, Donald L. 3,329,777. Dynamic ear phone. **42:** 1128—1967
Kling, Carl C. 3,287,503. Audio instruction editing system. **42:** 556—1967
Klund, William E. 3,311,869. Simultaneous preformed beam transmitting transducer system. **42:** 721—1967
—— **and Robert D. Isaak.** 3,327,062. Multiplex delay line time compressor. **42:** 1369—1967
—— (see Andrews, Daniel E., Jr.). **42:** 722—1967
Knight, Sidney. 3,230,825. Centralized visual tape deck. **42:** 927—1967
Knott, James M. 3,303,902. Ear piece. **42:** 558—1967
Kobler, Richard. 3,264,757. Audio typewriter. **42:** 930—1967
Kokesh, Frank P. 3,231,041. Apparatus for investigating earth formations. **42:** 315—1967
—— 3,304,536. Acoustic logging methods and apparatus employing two transmitters and four receivers. **42:** 1139—1967
Kokke, Johannes Gerardus Canisius. 3,229,044. Adjustment of magnetic heads. **42:** 555—1967
—— (see Bakos, György). **42:** 556—1967
Kompfner, Rudolf. 3,317,861. Spherical reflector elastic wave delay device with planar transducers. **42:** 925—1967
Koniecki, Thaddeus A. 3,293,975. Plucking mechanism for musical instrument. **42:** 310—1967
Korinke, Marvin (see Holman, Howard E.). **42:** 563—1967
Krause, Gerhard. 3,305,627. Apparatus for increasing the signal-to-noise ratio in a compound signal. **42:** 926—1967
Krautkramer, H. 3,313,146. Method of ultrasonically testing irregularly extending welds, or welds having irregular portions, by the pulse echo method. **42:** 569—1967
Krey, Theodor. 3,285,363. Method of generating seismic waves. **42:** 942—1967
Kritz, Jack. 3,267,414. Portable underwater communication unit. **42:** 944—1967
Kroamer, Vernon W., Herbert L. West, and Francis E. Huff. 3,263,207. Transistor underwater telephone system. **42:** 571—1967
Kronfeld, Leonard E. (see Dundovic, Joseph F.). **42:** 552—1967
Kryter, Karl D. 3,246,084. Method of and apparatus for speech compression and the like. **42:** 565—1967
Kudo, Shigeru (see Uemura, Masahiko). **42:** 1128—1967
Kuehl, William F. 3,311,011. Keyboard for free bass accordian. **42:** 930—1967
Kuehnle, Manfred R. 3,240,880. Data processing apparatus. **42:** 714—1967
—— 3,231,685. Data storage system record drive mechanism. **42:** 927—1967
Küng, Edward J. (see Pickett, George R.). **42:** 322—1967
Kuris, Arthur (see Balamuth, Lewis). **42:** 718—1967

L

Larson, Donald D. (see Curtis, Fred C.). **42:** 714—1967
Lash, Charles C. 3,223,967. Eliminating seismic interference waves by a cancellation procedure. **42:** 314—1967
Lasswell, Fred D., Jr. 3,181,870. Phonograph. **42:** 709—1967
Laux, David E. 3,243,524. Phonograph pickup with resiliently loaded stylus beam. **42:** 549—1967
Lavergne, Michel (see Cholet, Jacques). **42:** 1136—1967
Lawson, Thomas W. (see Wang, Ben C.). **42:** 715—1967
Leale, Leslie P. Re. 26,174. Hearing aid. **42:** 1126—1967
Lecroart, François. 3,225,328. Transportable seismograph. **42:** 314—1967
Lee, Milford R. and Donald E. Dunster. 3,292,144. Method for shaping the frequency spectrum of seismographic data. **42:** 1138—1967
Lehner, Francis E., Robert D. Gurney, Wayne F. Miller, and Elwin O. Witt. 3,246,291. Seismometer. **42:** 317—1967

Lemelson, Jerome H. 3,239,602. Thermoplastic recording and reproducing apparatus with selective beam erasure. **42:** 709—1967

Lemm, Lester F. 3,307,289. Ultrasonic apparatus for subsurface soil sterilization. **42:** 328—1967

Lerwill, William E. and Nigel A. Anstey. 3,273,113. Methods of and apparatus for measuring the travel times of vibrations in the earth's crust. **42:** 321—1967

—— (see Anstey, Nigel Allister). **42:** 321—1967

Leslie, Donald J. 3,192,322. Continuously rotating selectively operable apparatus for producing vibrato and tremolo. **42:** 312—1967

Lewis, George and Pasquale Arena. 3,312,789. Ear canal hearing aid. **42:** 1126—1967

Libby, Cecil W. (see Curtis, Fred C.). **42:** 714—1967

Lieberman, Philip. 3,245,403. System for acoustic detection of pathologic larynges. **42:** 723—1967

Lindall, Fred H. and William Harry Mayne. 3,283,846. Impulse seismic device. **42:** 324—1967

Lindars, John Henry (see Williamson, Robert Lawton). **42:** 944—1967

Lindenberg, Theodore. 3,215,439. Compliant phonograph stylus mounting. **42:** 1361—1967

Lock, Walter E. 3,243,521. Ferrite magnetic transducer assembly having low wear construction. **42:** 715—1967

Loeb, Julien M. 3,267,423. Electromechanical vibrators. **42:** 320—1967

—— 3,288,242. Electromagnetic wave controlled gated seismic wave recorder. **42:** 1137—1967

Loofbourrow, Robert J. 3,241,100. Digital seismic recording system. **42:** 316—1967

Loper, George B. and Frank J. McDonal. 3,219,968. Method and system for recording repetitive seismic signals. **42:** 939—1967

Lord, Arthur H. 3,275,096. Two crystal microphone assembly for well sounding. **42:** 322—1967

Loring, Ralph C. 3,213,411. Method of obtaining reverse path time tie between seismic signals. **42:** 313—1967

Lostimolo, Joseph. 3,320,844. Foot operated bass stringed musical instrument. **42:** 1363—1967

Luimes, Gerrit and Cornelis van Osenbruggen. 3,335,313. Spark erosion device with controllable electrode spacing. **42:** 1366—1967

Lustig, Howard E., Arthur L. Rossoff, Paul D. Frelich, and Harold K. Farr. 3,144,631. Radiation mapping system. **42:** 325—1967

Lynnworth, Lawrence C. and Edmund H. Carnevale. 3,302,044. Ultrasonic probe. **42:** 567—1967

—— (see Carnevale, Edmund H.). **42:** 936—1967

Lyons, James K., Tom Prickett, Jr., and John P. Woods. 3,229,784. Programming system for a continuous wave generator. **42:** 315—1967

M

Mabuchi, Shigeaki. 3,189,674. Apparatus for producing pedal sounds in electric musical instruments. **42:** 311—1967

—— 3,206,535. Attenuating sound control system for electronic musical instruments. **42:** 564—1967

—— 3,231,659. Volume control device for electric musical instruments. **42:** 1131—1967

MacChesney, Chester M. 3,211,844. Methods of and apparatus for recording utilizing elastic magnetic recording tapes. **42:** 553—1967

Machlup, Gustav F. 3,295,631. Stethoscope. **42:** 547—1967

Madsen, Erik Markvard Christopher Rørbaek. 3,299,219. Stereophonic transducer cartridge. **42:** 551—1967

Maeda, Kenichi, Toshiyuki Sakai, and Shuji Doshita. 3,265,814. Phonetic typewriter system. **42:** 933—1967

Maerkle, George P. (see Bauer, Benjamin B.). **42:** 708—1967

Magnus, Finn H. 3,268,030. Acoustic system. **42:** 307—1967

Majani, Pierre and Alan V. Rushton. 3,291,247. Acoustic logging systems. **42:** 943—1967

—— **and Alan V. Rushton.** 3,291,248. Acoustic logging systems. **42:** 943—1967

Majoros, Barna. 3,290,450. Pillow type speaker support. **42:** 926—1967

Malmberg, John H. 3,221,833. Geophysical borehole apparatus. **42:** 309—1967

Manley, Harold J. 3,325,596. Speech compression system. **42:** 932—1967

Marchand, Gilbert Jean (see Gouilloud, Michel Marie Albert). **42:** 940—1967

Marcucci, Richard and Isabel Capps Rainey. 3,184,242. Recording stylus. **42:** 709—1967

Mari, Daniel L. 3,313,196. Musical instrument string having improved anchor means and method of making same. **42:** 929—1967

Marklein, William R. 3,228,234. Ultrasonic inspection method. **42:** 936—1967

Markowitz, Jerome, Milton F. Nelson and Edwin H. Strain. 3,248,470. Electronic piano having means responsive to the velocity of the action. **42:** 1133—1967

Marshall, Thomas Stewart. 3,184,555. Stereophonic electrostatic pick-up. **42:** 709—1967

Martin, Joseph E. and John A. Merrill. 3,309,653. Ceramic transducer assembly. **42:** 722—1967

Martin, Sidney A., Jr. 3,243,520. Magnetic recordation of data. **42:** 715—1967

Martner, John G. 3,335,602. Apparatus for identifying bond defects. **42:** 1365—1967

Mason, Russell I. and Francis E. Buck. 3,290,642. Directional sonobuoy. **42:** 721—1967

Mason, Warren P. 3,278,696. Transistor microphone. **42:** 717—1967

Massa, Frank. 3,260,990. Electroacoustic transducer. **42:** 1143—1967

—— 3,328,751. Electroacoustic transducer. **42:** 1368—1967

Massa, Frank, Jr. 3,308,423. Electroacoustic transducer. **42:** 1143—1967

—— 3,319,219. Electroacoustic transducer. **42:** 945—1967

—— 3,319,220. Electromagnetic transducer for use in deep water. **42:** 1143—1967

Maybar, Stephen H. 3,299,221. Noise indicator circuit. **42:** 931—1967

Maynard, Fred B. 3,205,294. Electronic musical instrument. **42:** 564—1967

Mayne, William Harry. 3,280,936. Method for seismic surveying. **42:** 323—1967

—— (see Lindall, Fred H.). **42:** 324—1967

McClure, Carroll D. 3,246,290. Seismic model. **42:** 317—1967

McCollum, Burton. 3,242,459. Seismic wave radiator. **42:** 940—1967

—— 3,260,327. Short wave seismic pulse radiator. **42:** 319—1967

—— 3,274,543. Means and method of distinguishing seismic signals. **42:** 940—1967

McCoy, James N. 3,316,997. Echo ranging apparatus. **42:** 926—1967

McCreary, Harold J. 3,214,746. Electromagnetic delay head. **42:** 554—1967

McDonal, Frank J. (see Loper, George B.). **42:** 939—1967

McDonald, Lyell J. 3,196,201. Transistor keyer. **42:** 562—1967

McGaughey, William C. 3,310,977. Ultrasonic inspection apparatus using variable focus and gate. **42:** 719—1967

McIlwraith, Charles G. and Kerry E. Coughlin. 3,289,152. Acoustic signaling system. **42:** 571—1967

McMakin, Robert G. 3,256,660. Vibration dampening well derrick frame. **42:** 319—1967
McNatt, Eugene M. 3,241,101. Delineation of seismic reflecting horizons. **42:** 316—1967
Mears, Whitney H. 3,303,601. Destruction of nematodes. **42:** 723—1967
Meazzi, Remo, Franco Caldironi, and Attilio Oliveri. 3,291,888. Electric guitar. **42:** 561—1967
Medlin, Reginald O., Jr. (see Trowbridge, Lawrence E.). **42:** 1139—1967
Meienberg, Hans. 3,045,969. Vibration damping device for turbo-machine. **42:** 938—1967
Mendenhall, Harold L. and Paul J. Naquin, Jr. 3,217,828. Seismic prospecting. **42:** 313—1967
Merrill, John A. (see Martin, Joseph E.). **42:** 722—1967
Metros, Edward H. 3,247,926. Loud-speaker enclosure. **42:** 307—1967
Mettler, Hal C. 3,180,626. Ultrasonic cleaner and method of generating mechanical vibrations thereto. **42:** 567—1967
Meyer, Burton C. (see Glass, Marvin I.). **42:** 558—1967
Michel, Adolf. 3,183,760. Reeds for application in musical instruments particularly in electronic musical instruments. **42:** 311—1967
Miessner, Benjamin F. 3,183,296. Tone generating means for electrical musical instruments. **42:** 311—1967
Miller, Harry B. 3,309,654. Acoustic apparatus. **42:** 723—1967
Miller, John W. 3,268,028. Methods and apparatuses for seismic exploration. **42:** 320—1967
Miller, Park H., Jr. 3,282,371. Method of and apparatus for generating seismic waves. **42:** 323—1967
—— 3,291,250. Analogue device for geophysical prospecting. **42:** 943—1967
Miller, Wayne F. (see Lehner, Francis E.). **42:** 317—1967
Millis, Edwin G. 3,286,229. Long period horizontal seismometer. **42:** 942—1967
Miserocchi, Henry F. 3,307,266. Method and apparatus for measuring the thickness of a laminar layer. **42:** 312—1967
Mishimia, Makio (see Sasaki, Noburo). **42:** 567—1967
Miville, Charles A. and Fred Hugel. 3,294,332. Incremental magnetic tape recorder. **42:** 715—1967
Mizobe, Kunimitsu. 3,229,560. Keyboard musical instrument. **42:** 1134—1967
Moe, Lowell A. 3,328,908. Ultrasonic pest control and extermination system. **42:** 1146—1967
Moehring, William D. 3,233,046. Magnetic head assembly. **42:** 712—1967
Möller, Rolf. 3,236,943. Method of and apparatus for recording and reproducing television and like wideband signals. **42:** 710—1967
Monroe, Harold R. (see Erdman, Vadim N.). **42:** 548—1967
Montgomery, Orin C. 3,283,295. Radio seismic system. **42:** 941—1967
Moore, Neil A. (see Huckabay, William B.). **42:** 317—1967
Morley, Richard E. 3,287,504. High frequency magnetic readout head. **42:** 556—1967
Morris, John M. 3,061,079. Tunable vibration exciter. **42:** 939—1967
Morrison, Jimmie H. 3,287,508. Sound reproducing device having a replaceable endless tape cartridge. **42:** 556—1967
Moser, Edward I. 3,213,414. Acoustic transducer with pressure equalizing cover. **42:** 308—1967
—— **and Gerald S. Baker.** 3,213,415. Pressure equalizing arrangement for acoustic logging. **42:** 308—1967
Muller, Clarence A. (see D'Alessandro, Ignatius A.). **42:** 557—1967
Mullin, John T. 3,218,396. Transducing system. **42:** 554—1967
Mumaw, Everett D. 3,332,150. Method of loosening teeth with high-frequency vibrations. **42:** 1363—1967
Munch, Walter, Jr. 3,240,857. Switching system for electrical organs. **42:** 1132—1967
Munger, Donald W. 3,323,353. Ultrasonic inspection. **42:** 720—1967
Munk, Enno Coert. 3,213,207. Steoonic phonograph transducer. **42:** 710—1967
Muramoto, Shoichi (see Uemura, Saburo). **42:** 552—1967
Murata, Chozo. 3,210,082. Magnetic sound recording and reproducing apparatus of the spiral scanning type. **42:** 552—1967
Musgrave, Albert W. 3,240,286. Geophysical prospecting. **42:** 316—1967
—— (see Bratton, Robert H.). **42:** 942—1967
Mutschler, Edward C. 3,334,354. Dotting ink recorder. **42:** 1365—1967
Myers, Arthur J. (see Patterson, Gerald D.). **42:** 944—1967

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Nakamatsu, Yoshiro. 3,214,175. Sound recording system. **42:** 553—1967
Namenyi-Katz, Laszlo. 3,217,111. Apparatus for correcting recording distortion. **42:** 554—1967
Naquin, Paul J., Jr. (see Mendenhall, Harold L.). **42:** 313—1967
Narutani, Shigeru. 3,281,152. Record player. **42:** 549—1967
Nelkin, Arthur and Dale D. Skinner. 3,304,532. Side-looking sonar system. **42:** 571—1967
Nelson, Milton F. (see Markowitz, Jerome). **42:** 1133—1967
Neumann, Helmut. 3,209,078. Magnetic head equipped with a hall generator. **42:** 552—1967
Newman, Paul. 3,281,773. Methods and apparatus using a single downhole detector for making seismic velocity measurements. **42:** 1136—1967
Newton, Robert A. and Harry R. Espey. 3,284,768. Normalizing a seismogram data trace. **42:** 942—1967
——, **Jimmie R. Hughes and John D. Ball.** 3,283,296. Apparatus for normalizing a seismogram data trace. **42:** 1136—1967
Nisbet, Thomas R. 3,305,645. System of recording program control signals. **42:** 716—1967
Novak, James F. 3,308,237. Columnar loudspeaker system. **42:** 308—1967
Nykl, Robert. 3,162,810. Stereophonic reproduction method and apparatus. **42:** 708—1967

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Oakley, Tilton R. 3,220,503. Seismic shooting sequence timer. **42:** 308—1967
O'Conner, Robert T. and Benjamin L. Snavely. 3,327,285. Spring-armature construction for a magnetotractive transducer. **42:** 1145—1967
Oddo, Gerald P. 3,312,137. Pick for playing stringed musical instruments. **42:** 929—1967
Odenweller, Keith H. (see Hayes, Harvey C.). **42:** 1141—1967
Ogden, Larry M. and Boyd A. Wise. 3,325,858. Sonic apparatus. **42:** 925—1967
Okamura, Shiro. 3,213,204. Magnetic tape recorder. **42:** 553—1967
—— 3,290,438. Recording and reproducing system having redundant recording and selective reproduction. **42:** 557—1967
Oliver, Donald S. 3,240,881. Magnetic transducing head. **42:** 714—1967
Oliveri, Attilio (see Meazzi, Remo). **42:** 561—1967
Olson, Harry F. and Herbert Belar. 3,204,030. Acoustic apparatus for encoding sound. **42:** 565—1967

O'Neill, Edward T. 3,289,463. Piezoelectric crystal evaluator. **42:** 722—1967
Orthuber, R. K., C. V. Stanley and T. P. Dixon. 3,280,257. Method of and apparatus for character recognition. **42:** 934—1967
Ostrofsky, Bernard and Jack N. Bergman. 3,315,521. Transducer holder. **42:** 569—1967
Ota, Kazuho (see Yaita, Mitsuru). **42:** 548—1967
Owen, George Edwin, Jr. 3,162,730. Stereophonic amplifier circuit providing improved low frequency response. **42:** 708—1967

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Page, Leo W. 3,207,856. Magnetic head for recorder and reproducer. **42:** 551—1967
Palley, Carl W. (see Cupp, Frederick B.). **42:** 721—1967
Palmer, Rundlette K. 3,296,916. Musical instrument and amplification system. **42:** 561—1967
Palo, Maurice M. (see Cvetko, Henry J.). **42:** 1361—1967
Parisi, Tulio and Anton Banko. 3,335,443. Ultrasonic brush. **42:** 1364—1967
Parker, William H. (see Huckabay, William B.). **42:** 317, 942—1967
Parks, Jerry K. 3,270,315. Correlation device. **42:** 327—1967
Parrack, Alvin L. 3,220,504. Seismic shock wave exploration method. **42:** 313—1967
——, **Roy J. Clements and Oswald A. Itria.** 3,313,371. Pressure actuated switch used in a seismic prospecting system. **42:** 1140—1967
—— **and John L. Hudson.** 3,246,720. Seismic reflection amplifier. **42:** 317—1967
—— **and Steven A. Stubblefield.** 3,289,155. Seismic acceleration detector. **42:** 1137—1967
Parstorfer, John. 3,243,519. Electromagnetic transducer with twisted wire core. **42:** 714—1967
Pastor, Sheldon Lee. 3,218,397. Tape recorder apparatus. **42:** 554—1967
Patterson, Gerald D., Steven G. Williams, and Arthur J. Myers. 3,323,612. Sonic method for determining borehole vertical deviation. **42:** 944—1967
Pavey, George M., Jr. 3,275,097. Marine seismic cable system. **42:** 322—1967
—— **and Raymond H. Pearson.** 3,281,768. Method and cardioid system comprising pressure sensor means with output compensated displacement or acceleration sensor. **42:** 940—1967
—— **and Raymond H. Pearson.** 3,283,293. Particle velocity detector and means for canceling the effects of motional disturbances applied thereto. **42:** 1136—1967
—— **and Raymond H. Pearson.** 3,290,645. Method and underwater streamer apparatus for improving the fidelity of recorded seismic signals. **42:** 1138—1967
—— **and Raymond H. Pearson.** 3,299,397. Underwater detector streamer apparatus for improving the fildelity of recorded seismic signals. **42:** 1139—1967
Pearson, Raymond H. (see Pavey, George M., Jr.). **42:** 940, 1136, 1138, 1139—1967
Peck, Arthur R. 3,238,307. Dictation transcriber's receiving apparatus. **42:** 713—1967
Pennings, Matheus D. 3,305,157. Ultrasonic wire bonder. **42:** 312—1967
Percy, Tom. 3,195,389. Musical instrument with audio signal to force translator. **42:** 559—1967
Perna, Giuliano N. 3,282,370. Method for reflecting and refraction seismic prospections. **42:** 323—1967
Persson, Sten I. 3,277,405. Strain filter utilizing semiconductor device in mechanical oscillation. **42:** 707—1967
Peterson, Raymond A. 3,241,102. System for synthesizing seismograms from well logs. **42:** 316—1967
—— 3,283,844. Seismic prospecting system. **42:** 324—1967
Peterson, Richard H. 3,178,499. Electronic musical instrument. **42:** 310—1967
—— 3,197,541. Electronic musical instrument. **42:** 562—1967
—— 3,229,019. Electronic musical instrument. **42:** 1130—1967
—— 3,246,071. Electronic organ. **42:** 1132—1967
—— 3,247,308. Electronic musical instrument. **42:** 1133—1967
—— **and William H. Hass.** 3,197,544. Electronic musical instruments with twin detuning circuits to maintain constant vibrato. **42:** 563—1967
Pettengill, Donald A. 3,242,269. Flux sensitive magnetic transducer with automatic gain control. **42:** 714—1967
Pezaris, Constantine D. (see Dimitracopoulos, Panayotis C.). **42:** 711—1967
Pfab, Benedict H. 3,225,858. Radio synchronized firing control. **42:** 314—1967
Pfister, Robert E. 3,162,728. Stereo-sound reproducing device. **42:** 708—1967
Pfost, Robert F. 3,213,205. Tape guiding and transducing apparatus. **42:** 553—1967
—— 3,258,542. Wedge-shaped magnetic transducer. **42:** 556—1967
Pfund, Charles E. and John W. Dawson. 3,305,043. Acoustic communication device and toy. **42:** 928—1967
Phillips, Glenn U. 3,306,150. Violin bow guide. **42:** 718—1967
Phyfe, D. L. (see De Clerk, J. L.). **42:** 930—1967
Pickett, George R. and Edward J. Küng. 3,276,533. Acoustic character logging. **42:** 322—1967
Piety, Raymond G. and Ralph A. Doubt. 3,213,412. Correction of seismic records. **42:** 313—1967
Pijls, Hermanus Stephanus Josephus. (see van der Burgt, Cornelis Martinus). **42:** 1365—1967
Pollaschek, Viktor. 3,238,308. Arrangement in magnetic recorders having a trick switch. **42:** 714—1967
Pommerening, Uwe A. (see Brightman, Barrie). **42:** 1143—1967
Poutot, Georges Robert. 3,207,857. Electrodynamic transducer. **42:** 710—1967
Powers, Vincent J. 3,218,619. Self-aligning magnetic transducer head assembly. **42:** 555—1967
Prentky, Peter I. 3,219,353. Magnetic recording medium. **42:** 711—1967
Prickett, Tom, Jr. and John P. Woods. 3,266,012. Continuous wave apparatus with delay gated filter. **42:** 320—1967
—— (see Lyons, James K.). **42:** 315—1967
Prince, Edward R., Jr. (see Hines, Harley F.). **42:** 1138—1967
Prisekin, Constantine (see Filipowsky, Richard F. J.). **42:** 931—1967 (2 patents)
Pritchard, Peter E. 3,219,764. Stylus assembly for a phonograph pickup cartridge. **42:** 1362—1967
—— 3,294,405. Phonograph pick-up. **42:** 550—1967
Prochnow, Rudolph. 3,227,815. Adjustable head wheel panel for video tape recorders. **42:** 555—1967
Proctor, Noel B. 3,228,232. Ultrasonic inspection device. **42:** 935—1967
—— (see Wood, Fenton M.). **42:** 935, 936, 1364—1967
Proskauer, Walter. 3,333,537. Powder feed mechanism employing vibrating screen. **42:** 1366—1967
Punkar, Duane E. (see Sanfield, Walter). **42:** 1362—1967
Pure, Samuel. 3,206,719. Compass direction indicating system. **42:** 721—1967

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Rainey, Isabel Capps (see Marcucci, Richard). **42:** 709—1967
Raniszewski, Jozef. 3,302,470. Vibrohammer. **42:** 1135—1967

Rankin, Alexander Bryce Calder, Ernest Frederick French, and Harold William Taylor. 3,183,709. Ultrasonic testing of material. **42:** 567—1967
Redlich, Horst. 3,194,896. Stereophonic transducer with adjustable feedback coils. **42:** 709—1967
Reed, Prentiss B. 3,302,748. Loudspeaker system. **42:** 307—1967
Reeves, Philip C. (see Stamos, Chris). **42:** 1364—1967
Renner, Peter (see Schiebeler, Werner). **42:** 716—1967
Renwick, Erle B., Jr. 3,322,899. Simulating stereophonic sound reproduction. **42:** 926—1967
Renwick, Frederick W., Sr. 3,327,070. Hearing aid battery switch. **42:** 1126—1967
Reynolds, Walker, Jr. 3,319,736. Stethoscope. **42:** 1127—1967
Rich, Louis M. 3,235,671. Magnetic head support. **42:** 713—1967
Richard, Joseph D. 3,324,451. Echo ranging and recording apparatus. **42:** 1143—1967
Ricketts, Donald B. (see Clay, Haile S.). **42:** 707—1967
Riggs, Emmet D. and Clifford D. Dransfield. 3,277,439. Automatic switching and transducer control units for seismic weight dropping systems. **42:** 1136—1967
Riopelle, Arthur J. (see Fletcher, John L.). **42:** 924—1967
Ritter, Sammie F. 3,281,775. Automated system for the serial format recording and parallel format transcribing of repetitive seismic signals. **42:** 941—1967
Roark, James J. and Henry B. Ferguson. 3,230,541. System for analysis of seismic signals. **42:** 315—1967
—— **and Henry B. Ferguson.** 3,243,771. System for analysis of seismic signals. **42:** 317—1967
Rochon, John A. 3,299,765. Musical instrument stand. **42:** 558—1967
Roelofs, Richard V. (see Johnson, Wayne R.). **42:** 715—1967
Roesel, John F., Jr., Richard A. Whisnant, and William L. Wright. 3,268,672. Loudspeaker. **42:** 307—1967
Roever, William L. 3,233,694. High energy acoustic impulse source. **42:** 326—1967
Rogers, Max W. 3,221,092. Automatic reverberation control. **42:** 564—1967
Roll, John B. and John A. Herr. 3,322,875. Harmonica electronic amplification. **42:** 1363—1967
Romba, John J. 3,324,255. Audio helmet for monkeys. **42:** 1126—1967
Romberg, Francis M. 3,287,694. Seismic amplifier system. **42:** 1136—1967
Rosberger, Paul S. 3,200,689. Keyboard. **42:** 559—1967
Rosenblatt, Frank. 3,287,649. Audio signal pattern perception device. **42:** 934—1967
Ross, John D., Leslie E. Goodwin, and Thomas R. Herold. 3,326,042. Ultrasonic liquid level indicator. **42:** 937—1967
Ross, Wayne M. and John W. Dudley. 3,309,650. Pulse-echo sounder system. **42:** 572—1967
Rossoff, Arthur L. (see Lustig, Howard E.). **42:** 325—1967
Roth, Wilfred. 3,308,653. Vibration tunometer. **42:** 328—1967
Rowe, Horace N. 3,240,859. Electronic tremolo unit. **42:** 1132—1967
Rowlands, Richard O. 3,302,162. Doppler sonar apparatus. **42:** 326—1967
Ruehle, William H. 3,274,542. Methods of band-equalizing seismograms. **42:** 940—1967
—— 3,281,776. Geophysical data processing utilizing time-variable filters. **42:** 941—1967
Rushton, Alan V. (see Majani, Pierre). **42:** 943—1967 (2 patents)
Russell, Lindsay. 3,321,737. Sonar-type sensory aids. **42:** 1128—1967

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Sakai, Toshiyuki (see Maeda, Kenichi). **42:** 933—1967
Sanfield, Walter and Duane E. Punkar. 3,215,786. Universal monaural-binaural phonograph pickup cartridge. **42:** 1362—1967
Sanford, Herbert F. 3,294,333. Tape transport drive apparatus. **42:** 715—1967
Sasaki, Noburo, Makio Mishimia, and Yasuo Sugai. 3,302,655. Apparatus for spraying and ultrasonic washing of bottles. **42:** 567—1967
Sasaki, Yukito (see Tajiri, Iichi). **42:** 719—1967
Savage, Edwin W. and Frederick S. Hall. 3,247,322. Apparatus for automatic spoken phoneme identification. **42:** 566—1967
Savage, Kerry D. and Cloy N. Causey. 3,251,029. Acoustic attenuation well logging system. **42:** 318—1967
—— (see Walker, Hugh O., Jr.). **42:** 320—1967
Savit, Carl H. 3,287,691. Hydrophone cable. **42:** 570—1967
—— **Melvin J. Wells, and Thomas L. Slaven.** 3,289,153. Apparatus for compositing seismographic signals. **42:** 1137—1967
Sawyer, Harold T. 3,310,129, Sonar wand. **42:** 565—1967
Saxon, Harold L. and Melvin S. Wilson. 3,307,141. Wedge scan for echo locating system. **42:** 571—1967
Scarpa, Thomas J. 3,321,189. High-frequency ultrasonic generators. **42:** 719—1967
Schiebeler, Werner and Peter Renner. 3,294,335. Tape-winding apparatus. **42:** 716—1967
Schjonneberg, Knut. 3,162,727. Stereophonic reverberation system. **42:** 708—1967
Schlechte, Gerald R. (see Ford, Walter B.). **42:** 1135—1967
Schloss, Fred. 3,311,873. Intensity meter, particle acceleration type. **42:** 945—1967
—— 3,333,236. Hydrophone unit. **42:** 1369—1967
Schmetter, Ronald M. 3,281,154. Phonographs. **42:** 549—1967
Schneider, Wilhelm A. (see Ikrath, Kurt). **42:** 320—1967
Schneider, William A. (see Burg, John P.). **42:** 942—1967
Schooley, Willard A. 3,295,075. Electromechanical transducer devices employing radially polarized piezoelectric crystals. **42:** 707—1967
Schrecongost, Ray B. 3,179,812. Sine wave divider for electrical musical instruments. **42:** 310—1967
Schroeder, Manfred R. 3,183,304. Sound amplification system. **42:** 924—1967
—— 3,321,582. Wave analyzer. **42:** 933—1967
Schrom, Edward C. 3,283,294. Apparatus for an electro-hydraulic system. **42:** 941—1967
Schroth, Edward L. 3,248,989. Piano case construction. **42:** 1129—1967
Schwartz, Harold O., Harald E. W. Bode, and John R. Brand. 3,178,500. Preference network. **42:** 310—1967
Schwartz, Robert J. 3,304,537. Acoustic logging apparatus with selectable transmitters and receivers. **42:** 1139—1967
Schwartz, Theodore F. 3,245,158. Sonic reading device. **42:** 565—1967
Sear, Arthur W. 3,300,567. Sonar simulator apparatus. **42:** 325—1967
Sekino, Shozo (see Tajiri, Iichi). **42:** 719—1967
Sepp, Oscar W., Jr. 3,250,168. Preselector for the tonal control elements of an organ. **42:** 1129—1967
Shaper, Harry B. 3,329,235. Loudspeaker system. **42:** 1127—1967
Sharp, Paul H. 3,244,790. Percussion circuit utilizing a single-pole key switch. **42:** 1132—1967
Sheffet, David. 3,239,802. Seismic gain control system. **42:** 315—1967
Sikorski, Mathew E. 3,312,790. Stress-responsive semiconductor transducers. **42:** 928—1967

Silverman, Daniel. 3,277,977. Seismic surveying with multiple falling weights. **42:** 322—1967
—— 3,288,243. Phase varying continuous wave seismic surveying system. **42:** 1137—1967
Sims, Claude C. 3,320,581. Piezoelectric voice range transducer. **42:** 1144—1967
—— 3,328,752. Extended frequency range pressure balanced hydrophone. **42:** 1368—1967
Skelton, Jesse D. 3,284,769. Recording method for FM continuous waves. **42:** 942—1967
Skinner, Dale D. (see Nelkin, Arthur). **42:** 571—1967
Skoog, Karl I. L. 3,324,256. Amplifier with two channels for two-way speech connection. **42:** 1361—1967
Skov, Erling P. 3,310,637. Magnetic reproduce head using negative feedback to obtain maximum mid-band response. **42:** 557—1967
Slaven, Thomas L. (see Savit, Carl H.). **42:** 1137—1967
Slavinskas, Darius D. (see Smith, George W.). **42:** 314—1967
Sloan, Raymond W. 3,294,194. System for generating waves. **42:** 943—1967
Smith, George W. and Darius D. Slavinskas. 3,221,297. System for obtaining a composite seismic signal by generating a number of discrete single frequency seismic wave-forms and recording individually the detected reflections. **42:** 314—1967
Smith, Joseph E., Jr. (see Foster, Theodore C.). **42:** 713—1967
Smith, Noyes D., Jr. 3,256,501. Seismic surveying system for water-covered areas. **42:** 318—1967
Smithberg, Floyd E. and Michael C. Supitilov. 3,306,989. Magnetic record belt with means for aligning belt. **42:** 716—1967
Smolen, Helen (see Wysoczanski, Alfred J.). **42:** 1364—1967
Snavely, Benjamin L. (see O'Conner, Robert T.). **42:** 1145—1967
Snider, David Lee (see George, William B.). **42:** 708—1967
Soland, Duane E. (see Cook, Kenneth R.). **42:** 314—1967
Soloff, Robert S. 3,331,719. Method of splicing flexible thermo-plastic tape using adhesive tape and sonic energy. **42:** 1363—1967
Sommers, Henry S., Jr. 3,274,406. Acoustic-electromagnetic device. **42:** 717—1967
Sonderegger, Hans Conrad. 3,313,962. Piezo-electric transducer. **42:** 1128—1967
Sours, William A. 3,288,028. Sound and slide synchronizing arrangement. **42:** 308—1967
Speelman, Irving A. 3,303,903. Dual head stethoscope. **42:** 547—1967
Stamos, Chris, Philip C. Reeves, and James D. Wender, Jr. 3,327,401. Method and apparatus for removing moisture from material by sonic or ultrasonic energy in combination with centrifugal energy. **42:** 1364—1967
Stanish, Robert. 3,246,259. Electromechanical transducer and systems relating thereto. **42:** 307—1967
Stanley, C. V. (see Orthuber, R. K.). **42:** 934—1967
Stanton, Walter O. 3,297,831. Magnetic stereophonic phonograph pickup. **42:** 550—1967
Stark, William J. and John S. Hutchison. 3,243,770. First-kick relay switching method. **42:** 317—1967
Stauffer, Norman L. 3,334,351. Ink droplet recorder with plural nozzle-vibrators. **42:** 1365—1967
Steinberger, Raymond L. (see Hayes, Harvey C.). **42:** 1141—1967
Steinway, Theodore D. 3,240,095. Piano action bushing assembly. **42:** 1129—1967
Stephenson, Lee P. and Walter W. Klein. 3,273,114. Ergodic signal picking. **42:** 321—1967
Sterry, Dan G. 3,284,766. Simultaneous variable density recording system. **42:** 942—1967
Stetten, Kenneth J. and James Wallen, Jr. 3,261,009. Seismic personnel sensor. **42:** 319—1967
Stewart, John. 3,326,037. Ultrasonic examination apparatus. **42:** 1134—1967
Stewart, John L. 3,325,597. Sound analyzing system. **42:** 932—1967
Stiefel, Paul. 3,180,919. Transistorized percussion circuit for electrical musical instrument. **42:** 311—1967
Stinson, Herman Birchard, Jr. 3,247,310. Musical instrument. **42:** 1133—1967
Stobaugh, Graham E. 3,290,425. Automatic volume control for stringed musical instruments. **42:** 565—1967
Stockel, Albert, Jr. (see Ewing, John I.). **42:** 321—1967
Strain, Edwin H. (see Markowitz, Jerome). **42:** 1133—1967
Strange, Booth B. (see Wells, Melvin J.). **42:** 319—1967
Stubblefield, Steven A. (see Parrack, Alvin L.). **42:** 1137—1967
Sugai, Yasuo (see Sasaki, Noburo). **42:** 567—1967
Sullivan, Douglas S. (see Brown, Graydon L.). **42:** 1138—1967
Suloway, Naomi S. 3,303,290. Signalling arrangements employing piezoelectric devices. **42:** 558—1967
Summers, Gerald C. 3,295,628. Acoustic well logging method and apparatus. **42:** 943—1967
—— 3,297,983. Methods and apparatus for acoustic well logging. **42:** 1138—1967
Sundt, Peter C. and Alan D. Waldie. 3,258,742. Inductively coupled seismometer. **42:** 319—1967
Supernaw, Dwight L. and Charles R. Wilson. 3,325,779. Transducer. **42:** 1145—1967
Supernowicz, Edward J. 3,230,517. External field magnetic head. **42:** 712—1967
Supitilov, Michael C. (see Smithberg, Floyd E.). **42:** 716—1967
Sykes, Alan O. 3,304,534. Multipurpose piezoelectric transducer system. **42:** 1141—1967
—— 3,320,580. Multipurpose piezoelectric transducer system. **42:** 1141—1967
—— 3,320,582. Piezoelectric transducer. **42:** 1142—1967
Szpak, Stanislaw J. (see Blomgren, E. A.). **42:** 567—1967

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Tada, Masanobu. 3,227,457. Magnetic recording and reproducing system. **42:** 712—1967
Taeschler, Eduard. 3,302,747. Flexible-tubing stethoscope. **42:** 547—1967
Tajiri, Iichi, Shozo Sekino, and Yukito Sasaki. 3,320,797. Ultrasonic internal flaw detecting apparatus for hot metal. **42:** 719—1967
Taylor, Harold William (see Rankin, Alexander Bryce Calder). **42:** 567—1967
Taylor, Maurice E. 3,287,695. Self-adjusting inverse filter. **42:** 1136—1967
Ten Eyck, Robert R. 3,214,525. Stereophonic piezoelectric bender-type transducer. **42:** 710—1967
Terry, Melvin C. (see Ball, John D.). **42:** 944—1967
Thibodeaux, Robert. 3,290,981. Musical instrument. **42:** 561—1967
Thomas, Neal C. (see King, James C.). **42:** 928—1967
Thomas, Richard E. (see Curtis, Fred C.). **42:** 714—1967
Thrasher, Howard G. 3,057,592. Irrotational mount. **42:** 938—1967
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Agreement in detection: observers and electrical model. Paul I. Williams and Lloyd A. Jeffress. 42: —1967

Hydrodynamic generation of distortion in mechanical cochlear models. Juergen Tonndorf. 42: 1156—1967

Model for auditory-nerve discharge patterns of mammals. David J. Anderson and C. Daniel Geisler. 42: 1207—1967

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Spontaneous firing characteristics of a computer model of the peripheral auditory system. Robert C. Lummis and Elizabeth A. Lundry. 42: 1207—1967

4.2.4 Cochlear Electrophysiology

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AC potentials inside the organ of corti. Merle Lawrence. 42: 1157—1967

Amplitude of auditory evoked vertex potentials as a function of interstimulus interval during slow repetitive stimulation. David A. Nelson and Frank M. Lassman. 42: 1190—1967

Auditory function in atherosclerotic rabbits. Richard J. Voots and Richard Lawrence. 42: 1157—1967

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Development of hypersensitivity to acetylcholine by the denervated cochlea. E. A. Daigneault and R. Don Brown. 42: 1158—1967

Differential effects of cortical lesions upon various types of auditory discriminations in the monkey. D. N. Elliott and L. A. Frazier. 42: 1189—1967

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Electrophysiological studies of binaural hearing. Jay M. Goldberg. 42: 1174—1967

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Olivocochlear bundle: relationships to signal discrimination in noise. James H. Dewson, III. 42: 1189—1967

Prediction of the volume of the middle ear cavity from cochlear microphonic measurements. Florence E. McArdle and Juergen Tonndorf. 42: 1157—1967

4.2.5 Auditory Nerve and Central Pathways

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Auditory sensitization. Bruce H. Deatherage and Donald Henderson. 42: 438—1967

Encoding of stimulus frequency and intensity by cat superior olive *S*-segment cells. Chiyeko Tsuchitani and James C. Boudreau. 42: 794—1967

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Activation of auditory cortex by clicks after bilateral lesions of the brachium of the inferior colliculus. Eli Osman and Robert Galambos. 42: 512—1967

Shapes of tuning curves for single auditory-nerve fibers. N. Y. S. Kiang, M. B. Sachs, and W. T. Peake. 42: 1341—1967

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Auditory-nerve responses as a function of repetition rate and background noise. Donald C. Teas and Gretchen B. Henry. 42: 1189—1967

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Discharge characteristics of binaurally excited neurons in cat inferior colliculus. C. D. Geisler, W. S. Rhode, and D. W. Hazelton. 42: 1207—1967

Discharge rates of auditory-nerve fibers in response to electric and acoustic stimuli. E. C. Moxon and N. Y. S. Kiang. 42: 1206—1967

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On listening to competing stimuli and functional differentiation of the cerebral hemispheres. Donald Shankweiler. 42: 1175—1967

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4.3 Binaural Hearing. Localization

Papers

Auditory intensity discriminal scale I. Evidence derived from binaural intensity summation. Michel Treisman and R. J. Erwin. 42: 586—1967

Binaural release from masking for speech and gain in intelligibility. H. Levitt and L. R. Rabiner. 42: 601—1967

Detection and localization: an extension of the theory of signal detectability. Ramon L. Hershman and M. Lichtenstein. 42: 446—1967

Effect of induced head movements on localization of direction of sounds. Willard R. Thurlow and Philip S. Runge. 42: 480—1967

Effect of two interaural phase conditions for binaural exposures on threshold shift. William Melnick. 42: 179—1967
Explanation of masking-level differences that result from interaural intensive disparities of noise. Terrence R. Dolan and Donald E. Robinson. 42: 977—1967
Further observations on contralateral remote masking and related phenomena. W. Dixon Ward. 42: 593—1967
Head movements during sound localization. Willard R. Thurlow, John W. Mangels, and Philip S. Runge. 42: 489—1967
Lateralization and intensity discrimination. Lloyd F. Elfner and David R. Perrott. 42: 441—1967
Predicting binaural gain in intelligibility and release from masking for speech. H. Levitt and L. R. Rabiner. 42: 820—1967
Release of masking for speech through interaural time delay. Raymond Carhart, Tom W. Tillman, and Kenneth R. Johnson. 42: 124—1967

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Binaural effects in psychoacoustic research. David M. Green. 42: 1175—1967
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Binaural interaction in the cat superior olive S-segment. James C. Boudreau and Chiyeko Tsuchitani. 42: 1207—1967
Binaural unmasking and frequency discrimination. Ronald M. Robertson and David P. Goldstein. 42: 1180—1967
Detection and localization: analysis of an ideal observer. Ramon L. Hershman and M. Lichtenstein. 42: 1179—1967
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Haas and/or precedence effect in sound localization. Mark B. Gardner. 42: 1179—1967
Lateralization of an auditory signal in correlated noise and in uncorrelated noise as a function of signal frequency. Donald E. Robinson and James P. Egan. 42: 1180—1967
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Neative MLD's with gated sinewave masking. Frederic L. Wightman. 42: 1180—1967
On listening to competing stimuli and functional differentiation of the cerebral hemispheres. Donald Shankweiler. 42: 1175—1967
Time-intensity trade and the lateralized location. Carl W. Asp. 42: 1179—1967

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4.4 **Deafness. (See also 5.5.)**

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Temporal summation for critical bandwidth signals. Jerry L. Northern. 42: 456—1967

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Corrections for attenuator transient effects to data on self-recorded audiometric threshold of normal-hearing and high-tone deaf persons. R. R. A. Coles and C. G. Rice. 42: 509—1967
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Calibration study of one hundred audiometers currently employed in hearing conservation programs. W. G. Thomas and Mack J. Preslar. 42: 1148—1967
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Experiments on the use of the touch-tone telephone as a communication for the deaf. J. R. Nelson. 42: 1192—1967
Predicting hearing impairment from A-weighted sound levels. James H. Botsford. 42: 1151—1967

4.4.5 **Auditory Fatigue, Temporary Threshold Shift**

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Central factor in auditory fatigue—an artifact? G. Richard Price and Lynn C. Oatman. 42: 475—1967
Contralateral masking: an attempt to determine the rôle of the aural reflex. Kjell Gjaevenes and Erik Vigran. 42: 580—1967
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4.5 Instruments Relating to Hearing and for the Testing of Hearing. (See also 5.5.)

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Reliability of auditory threshold determinations using a circumaural-earphone assembly. G. R. C. Atherley, T. I. Hempstock, P. Lord, and J. G. Walker. **42**: 199—1967

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4.6 Loudness, Threshold Determinations

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Auditory continuity effects as a function of the duration and temporal location of the interpolated signal. Lloyd F. Elfner and Jerry L. Homick. **42**: 576—1967

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4.7 Masking. (See also 5.5.)

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Auditory sensitization. Bruce H. Deatherage and Donald Henderson. **42**: 438—1967

Aural harmonics: the masking of a 2000-Hz tone by a sufficient 1000-Hz fundamental. T. Dean Clack. **42**: 751—1967

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Development of auditory narrow-band frequency contours. Lois L. Elliott. **42**: 143—1967

Explanation of masking-level differences that result from interaural intensive disparities of noise. Terrence R. Dolan and Donald E. Robinson. **42**: 977—1967

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4.8 Phase Effects. (See also 4.3.)

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Effect of two interaural phase conditions for binaural exposures on threshold shift. William Melnick. 42: 179—1967

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4.9 Pitch. Absolute Pitch

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Frequencies dominant in the perception of the pitch of complex sounds. Roelof J. Ritsma. 42: 191—1967

Model of the "secondary" residue effect in the perception of complex tones. Henryk Fischler. 42: 759—1967

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Number of pulses required for minimal pitch. Irwin Pollack. 42: 895—1967

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Frequency discrimination as a function of frequency. G. Bruce Henning and S. M. Forbes. 42: 1216—1967

Pitch of pure tones. Elca Swigart. 42: 1215—1967

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Asynchrony: the perception of temporal gaps within periodic auditory pulse patterns. Irwin Pollack. 42: 1335—1967

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Ohm's law and masking. B. L. Cardozo. 42: 1193—1967

4.11 Theories of Hearing

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Development of auditory narrow-band frequency contours. Lois L. Elliott. 42: 143—1967

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4.12 Timbre

Papers

Beats of mistuned consonances. R. Plomp. **42**: 462—1967

4.13 Ear Acoustical Impedance

Papers

External-ear replica for acoustical testing. Benjamin B. Bauer, Allan J. Rosenheck, and Louis A. Abbagnaro. **42**: 204—1967

4.14 Use of Ear Protectors, Earplugs

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Acoustic reflex ear protective system. John L. Fletcher and Arthur J. Riopelle. **42**: 924—1967

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Asynchrony: the perception of temporal gaps within periodic auditory pulse patterns. Irwin Pollack. **42**: 1335—1967

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Better than energy detector performance by human observers. M. M. Taylor and S. M. Forbes. **42**: 1194—1967

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5 **ACOUSTICAL INSTRUMENTS AND APPARATUS. (See also 2.8, 4.5, 9.6, 10.3, 12.3, 12.3p, 12.3z, 13.11, 13.11n, and 13.11t.)**

5.1 **General, Unclassified**

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5.2 **Amplifiers and Attenuators**

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Amplifier with two channels for two-way speech connection. Karl I. L. Skoog. 42: 1361—1967

5.3 **Acoustic-Impedance Measurement. (See also 11.5 and 12.3z.)**

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Calculation of the nearfield pressure induced by vibrating circular plates. George W. Miner, II and Patricio A. Laura. 42: 1025—1967

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On the equivalent circuit of a plane wave confronting an acoustical device. Benjamin B. Bauer. 42: 1095—1967

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5.4 **Analyzers and Filters, Acoustic and Electric. Oscillographs. Acoustic Delay Lines and Resonators. (See also 5.15 and 12.3f.)**

Papers
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Boundary wave-vector filters for the study of the pressure field in a turbulent boundary layer. G. Maidanik and D. W. Jorgensen. 42: 494—1967
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Abstracts
Design of a high-amplitude resonator. J. G. Martner and S. V. Hanagud. 42: 1212—1967
Development and evaluation of methods for measuring the characteristics of small acoustic filters. William S. Gatley and Raymond Cohen. 42: 1218—1967
Limitations on the performance of ultrasonic delay lines using vitreous silica as the delay medium. A. H. Meitzler. 42: 1178—1967
Real-time Debye–Sears effect spectrum analyzer for audio frequencies. F. H. Slaymaker. 42: 1217—1967

Patents
Electromechanical transducer devices employing radially polarized piezoelectric crystals. Willard A. Schooley. 42: 707—1967

Electromechanical transducer and systems relating thereto. Robert Stanish. **42**: 307—1967
Off-axis elastic wave delay device with spherical reflections. Arthur H. Fitch. **42**: 925—1967
Piezoelectric fluid analyzer. Harry M. Crawford. **42**: 925—1967
Reproducing and translating apparatus. James E. Hawkins. **42**: 548—1967
Spherical reflector elastic wave delay device with planar transducers. Rudolf Kompgner. **42**: 925—1967
Stethoscope. Gustav F. Machlup. **42**: 547—1967
Strain filter utilizing semiconductor device in mechanical oscillation. Sten I. Persson. **42**: 707—1967

5.5 Audiometers. (See also 4.4 and 4.5.)

Letters to the Editor

Corrections for attenuator transient effects to data on self-recorded audiometric threshold of normal-hearing and high-tone deaf persons. R. R. A. Coles and C. G. Rice. **42**: 509—1967

Abstracts

Calibration study of one hundred audiometers currently employed in hearing conservation programs. W. G. Thomas and Mack J. Preslar. **42**: 1148—1967

5.6 Broadcasting (Radio and Television)

Patents

Apparatus for increasing the signal-to-noise ratio in a compound signal. Gerhard Krause. **42**: 926—1967

5.8 Loudspeakers, Horns, Measurements. Practical Sound Sources. (See also 5.13, 5.17, and 5.18.)

Abstracts

Directional 420-Hz sound source. Morton Kronengold and William Toulis. **42**: 1187—1967
Infrasonic generator. W. C. Richie, C. P. Little, and D. W. Evertson. **42**: 1212—1967
Measurement of the power output of pure tone sources in a reverberation chamber. George C. Maling, Jr. **42**: 1151—1967
Mechanical stability of the diaphragm of an electrostatic loudspeaker. Josef Merhaut. **42**: 1212—1967
Nonlinear distortion in dynamic, direct radiator, loudspeakers. Harry F. Olson. **42**: 1212—1967
Some acoustic source experiments conducted in 1966. William H. Craft. **42**: 1213—1967

Patents

Acoustic system. Finn H. Magnus. **42**: 307—1967
Acoustical enclosures. Lucien Barthel. **42**: 1127—1967
Columnar loudspeaker system. James F. Novak. **42**: 308—1967
Electroacoustic transducer. Stephen L. Heidrich. **42**: 926—1967
Electro-acoustic transducers. Stephen L. Heidrich. **42**: 1127—1967
Line-source loudspeakers. David L. Klepper. **42**: 307—1967
Loudspeaker. John F. Roesel, Jr., Richard A. Whisnant, and William L. Wright. **42**: 307—1967
Loudspeaker. Glenn E. Warnaka. **42**: 307—1967
Loudspeakers. Stanley Kelly. **42**: 308—1967
Loud-speaker enclosure. Edward H. Metros. **42**: 307—1967
Loudspeaker horns. Stanley Kelly. **42**: 308—1967
Louspeaker system. Prentiss B. Reed. **42**: 307—1967
Loudspeaker system. Harry B. Shaper. **42**: 1127—1967
Loudspeaker with feedback signal generator. Stephanus H. de Koning. **42**: 1128—1967
Microphone and speaker structure for miniature receiver and transmitter. Robert H. Walker. **42**: 548—1967
Pillow type speaker support. Barna Majoros. **42**: 926—1967
Reinforcing cap for moving coil loudspeakers. Dennis Charles Ward. **42**: 926—1967
Sound reproducing apparatus. Samuel Bryan and Walter B. Udell. **42**: 307—1967
Unitary field structure for magnetic loudspeaker. Aldo L. Coen. **42**: 1127—1967
Speaker enclosure. David Arden. **42**: 1128—1967
Speaker system. John T. Valuch. **42**: 1127—1967

5.9 Microphones. Microphone-Calibration Equipment and Techniques. (See also 5.18, 12.3p, and 13.11t.)

Papers

External-ear replica for acoustical testing. Benjamin B. Bauer, Allan J. Rosenheck, and Louis A. Abbagnaro. **42**: 204—1967
Flush-mounted pressure transducer system as spatial and spectral filters. G. Maidanik. **42**: 1017—1967
Instrumental rôle in the observation of geoacoustical phenomena from artificial sources. Uri Fehr. **42**: 991—1967

Letters to the Editor

Capacitance microphone for measurement of small attenuation coefficients. R. T. Arnold, J. E. Mackey, and E. L. Meeks. **42**: 677—1967
On the equivalent circuit of a plane wave confronting an acoustical device. Benjamin B. Bauer. **42**: 1095—1967

Patents

Calibrator for microphones. Haile S. Clay, Charles W. Cantoni, and Donald B. Ricketts. **42**: 707—1967
Microphone support device for a mask. Maxwell Berman. **42**: 926—1967

5.10 Navigational Instruments Using Air Sound. Altitude-Measuring Instruments. Sound Ranging. (For Underwater Ranging, see 13.11n.)

Patents

Echo ranging apparatus. James N. McCoy. **42**: 926—1967
Seismic shooting sequence timer. Tilton R. Oakley. **42**: 308—1967
Sonar-type sensory aids. Lindsay Russell. **42**: 1128—1967

5.13 Sound-Reproducing Systems, Including Public-Address Systems, Stereophonic Reproduction

Patents

Amplifier circuit. Vadim N. Erdman and Harold R. Monroe. **42**: 548—1967
Simulating stereophonic sound reproduction. Erle B. Renwick, Jr. **42**: 926—1967
Sound reverberating device. Adam J. Janisio. **42**: 926—1967

Stereophonic amplifier circuit providing improved low frequency response. George Edwin Owen, Jr. 42: 708—1967
Stereophonic effect emphasizing system. Mitsuru Yaita and Kazuho Ota. 42: 548—1967
Stereophonic reproduction method and apparatus. Robert Nykl. 42: 708—1967
Stereophonic reverberation system. Knut Schjonneberg. 42: 708—1967
Stereophonic sound reproducing system. Benjamin B. Bauer, John M. Hollywood, and George P. Maerkle. 42: 708—1967
Stereo-sound reproducing device. Robert E. Pfister. 42: 708—1967

5.15 **Sound-Level Meters. Level Recorders. Sound-Pressure Measurement. (See also 5.4.)**

Technical Notes and Research Briefs
Inexpensive new sound-level calibrator. 42: 913—1967

Abstracts
Digital implementation of a noise rating meter and transient analyzer. William W. Lang, George C. Maling, Jr., and William A. Taylor. 42: 1151—1967
Schlieren system for acoustic measurement. J. V. Sanders. 42: 1218—1967
Underwater-sound level meter. J. J. Truchard. 42: 1218—1967

5.16 **Sound Recording and Reproducing. General**

Patents
Coil pick-up and tube recorder system. El G. Vozeolas and Arthur G. Vozeolas. 42: 1128—1967
Selective sound responsive amusement or exercising devices. William G. George, John C. Hill, David Lee Snider, and Anthony Gumienny. 42: 708—1967
Sound reproducing apparatus. Albert Eric Draper. 42: 548—1967
Thermoplastic recording and reproducing apparatus with selective beam erasure. Jerome H. Lemelson. 42: 709—1967

5.16d **Mechanical Recording and Reproducing**

Patents
Attachment of a needle-carrying member in a phonograph stylus assembly. Roy Dally. 42: 710—1967
Battery operated portable toy phonograph. Tobin Wolf. 42: 927—1967
Compliant phonograph stylus mounting. Theodore Lindenberg. 42: 1361—1967
Coupler for a stereo phonograph cartridge. Roy Dally and William A. Cavagnaro. 42: 550—1967
Drive yoke for phonograph pickups. Robert J. Hammond. 42: 709—1967
Electrodynamic transducer. Georges Robert Poutot. 42: 710—1967
High capacity transducer unit. Glenn N. Howatt and Edith M. Gulton. 42: 548—1967
Magnetic stereophonic phonograph pickup. Walter O. Stanton. 42: 550—1967
Method and apparatus for making phonographic re-recordings. Walter L. Welch. 42: 549—1967
Method and apparatus for mounting the needle-carrying member of a phonograph stylus assembly. Roy Dally. 42: 710—1967
Multiple sound effect mechanism for dolls. Tobin Wolf. 42: 550—1967
Phonograph. Fred D. Lasswell, Jr. 42: 709—1967
Phonograph cartridge. John F. Wood. 42: 1361—1967
Phonograph pickup. John F. Wood. 42: 551—1967
Phonograph pickup. John A. Tourtellot. 42: 551—1967
Phonograph pick-up. Peter E. Pritchard. 42: 550—1967
Phonograph pickup for grooved records. Erhard Ahrens. 42: 549—1967
Phonograph pickup with resiliently loaded stylus beam. David E. Laux. 42: 549—1967
Phonograph recorder-reproducer cartridge utilizing supersonic and audio frequency inputs. Robert Wagner. 42: 549—1967
Phonograph stylus. Joseph F. Grado. 42: 550—1967
Phonographic arm and mounting means. James T. Baloghy. 42: 550—1967
Phonographs. Ronald M. Schmetter. 42: 549—1967
Record player. Shigeru Narutani. 42: 549—1967
Recording stylus. Richard Marcucci and Isabel Capps Rainey. 42: 709—1967
Recording system. Edward C. Fox. 42: 1362—1967
Sound and slide synchronizing arrangement. William A. Sours. 42: 308—1967
Stereo transducer with interchangeable stylus holders. Machiel de Vries. 42: 1362—1967
Stereophonic electrostatic pick-up. Thomas Stewart Marshall. 42: 709—1967
Stereophonic phonograph transducer. Enno Coert Munk. 42: 710—1967
Stereophonic pick-up. Machiel de Vries. 42: 1362—1967
Stereophonic piezoelectric bender-type transducer. Robert R. Ten Eyck. 42: 710—1967
Stereophonic piezoelectric pickup cartridge. Henry J. Cvetko and Maurice M. Palo. 42: 1361—1967
Stereophonic record transducers. Carmen P. Germano. 42: 549—1967
Stereophonic transducer cartridge. Erik Markvard Christopher Rørbaek Madsen. 42: 551—1967
Stereophonic transducer with adjustable feedback coils. Horst Redlich. 42: 709—1967
Stylus assembly for a phonograph pickup cartridge. Peter E. Pritchard. 42: 1362—1967
Tone arm for gramophone. Margaret Joan Cooper. 42: 550—1967
Toy phonograph device. William R. Allen. 42: 710—1967
Transducer for use both in pick-ups and in track cutting means. Machiel de Vries. 42: 549—1967
Universal monaural-binaural phonograph pickup cartridge. Walter Sanfield and Duane E. Punkar. 42: 1362—1967

5.16f **Photographic Recording and Reproducing**

Patents
Apparatus for sound and image printing of irradiation sensitive film. Kenneth Burton Curtis. 42: 1362—1967
Method of and apparatus for recording and reproducing television and like wideband signals. Rolf Möller. 42: 710—1967
Photographic slides with sound track. Panayotis C. Dimitracopoulos and Constantine D. Pezaris. 42: 711—1967

Variable area recording method. Charles E. Weller. 42: 308—1967

5.16m Magnetic Recording and Reproducing

Patents

Adjustable head wheel panel for video tape recorders. Rudolph Prochnow. 42: 555——1967
Adjustment of magnetic heads. Johannes Gerardus Canisius Kokke. 42: 555—1967
Apparatus for compensating for magnetic tape speed variations during playback. Fritz A. Guerth. 42: 716—1967
Apparatus for correcting recording distortion. Laszlo Namenyi-Katz. 42: 554—1967
Apparatus for the automatic reproduction of tape recordings. Roger Emil Huppert. 42: 551—1967
Apparatus for transducing from a stationary record. Shinichi Isemura. 42: 711—1967
Arrangement in magnetic recorders having a trick switch. Viktor Pollaschek. 42: 714—1967
Audio instruction editing system. Carl C. Kling. 42: 556—1967
Boundary-displacement type magnetic oscillograph. Saburo Uemura. 42: 555—1967
Centralized visual tape deck. Sidney Knight. 42: 927—1967
Data processing apparatus. Manfred R. Kuehnle. 42: 714—1967
Data storage system record drive mechanism. Manfred R. Kuehnle. 42: 927—1967
Dictation transcriber's receiving apparatus. Arthur R. Peck. 42: 713—1967
Double integrator magnetic amplifier output circuit. William A. Geyger. 42: 553—1967
Dubbing circuits for magnetic recorders with means for reducing feedback. Helmut Brandt. 42: 555—1967
Electromagnetic delay head. Harold J. McCreary. 42: 554—1967
Electromagnetic transducer with twisted wire core. John Parstorfer. 42: 714—1967
Electromagnetic transducers. Theodore C. Foster and Joseph E. Smith, Jr. 42: 713—1967
External field magnetic head. Edward J. Supernowicz. 42: 712—1967
Ferrite magnetic transducer assembly having low wear construction. Walter E. Lock. 42: 715—1967
Film stabilizer mechanism for projectors, cameras, and printers. Ellis W. D'Arcy. 42: 716—1967
Flux sensitive magnetic transducer with automatic gain control. Donald A. Pettengill. 42: 714—1967
Frequency modulator recording head. Henry Ray. Warren. 42: 712—1967
Guide means for tape-shaped carriers. György Bakos and Johannes Gerardus Canisius Kokke. 42: 556—1967
High frequency magnetic readout head. Richard E. Morley. 42: 556—1967
High speed video tape recording. R. Lee Hollingsworth. 42: 713—1967
Incremental magnetic tape recorder. Charles A. Miville and Fred Hugel. 42: 715—1967
Magnetic head assembly. William D. Moehring. 42: 712—1967
Magnetic head construction. John F. Wood and John Frisz. 42: 555—1967
Magnetic head equipped with a hall generator. Helmut Neumann. 42: 552—1967
Magnetic head for recorder and reproducer. Leo W. Page. 42: 551—1967
Magnetic head support. Louis M. Rich. 42: 713—1967
Magnetic head suspensions. Ignatius A. D'Alessandro and Clarence A. Muller. 42: 557—1967
Magnetic reading apparatus for demodulating a recorded frequency modulated signal. Henry Ray Warren. 42: 554—1967
Magnetic record belt with means for aligning belt. Floyd E. Smithberg and Michael C. Supitilov. 42: 716—1967
Magnetic record reproducing apparatus. Vladimir K. Zworykin and Paul K. Weimer. 42: 553—1967
Magnetic recordation of data. Sidney A. Martin. Jr. 42: 715—1967
Magnetic recording and reproducing devices. Shine Yasuoka, Shozo Aratani, Ichiro Arimura, and Osahiko Yano. 42: 557—1967
Magnetic recording and reproducing system. Masahiko Fukamachi. 42: 556—1967
Magnetic recording and reproducing system. Masanobu Tada. 42: 712—1967
Magnetic recording device utilizing a variable reluctance head and a parametron. Roger C. Camp. 42: 713—1967
Magnetic recording medium. Peter I. Prentky. 42: 711—1967
Magnetic reproduce head using negative feedback to obtain maximum mid-band response. Erling P. Skov. 42: 557—1967
Magnetic reproducing system. Nobutoshi Kihara. 42: 714—1967
Magnetic sound recording and reproducing apparatus of the spiral scanning type. Chozo Murata. 42: 552—1967
Magnetic storage disc and drum. Marvin Jacoby. 42: 557—1967
Magnetic tape recorder. Shiro Okamura. 42: 553—1967
Magnetic tape recording. Bruce F. Wiley. 42: 554—1967
Magnetic transducer. Henry Ray Warren. 42: 711—1967
Magnetic transducer and memory drum assembly. Marvin E. Alberda. 42: 713—1967
Magnetic transducing head. Donald S. Oliver. 42: 714—1967
Methods of an apparatus for recording utilizing elastic magnetic recording tapes. Chester M. MacChesney. 42: 553—1967
Method of making a magnetic transducer head. John Hluszko. 42: 712—1967
Method of manufacturing a magnetic transducer. Fred C. Curtis, Donald D. Larson, Richard E. Thomas, and Cecil W. Libby. 42: 714—1967
Multi-channel electromagnetic head structures. Joseph F. Dundovic and Leonard E. Kronfeld. 42: 552—1967
Multiplex magnetic recording and reproducing system. Saburo Uemura and Shoichi Muramoto. 42: 552—1967
Noise reduction method for recorded signals. Wayne R. Johnson. 42: 551—1967
Positioning mechanism. Theodore W. Barger. 42: 551—1967
Pressure pad insert for tape cartridges. Norman A. Fischer. 42: 552—1967

Recording and reproducing system having redundant recording and selective reproduction. Shiro Okamura. 42: 557—1967
Recording unit for audio teaching equipment. Anthony F. Erff. 42: 716—1967
Rotating head magnetic recorder with tape extension or shrinkage compensation. Nobutoshi Kihara. 42: 713—1967
Self-aligning magnetic transducer head assembly. Vincent J. Powers. 42: 555—1967
Shielded tape transport. Roy T. Heath. 42: 557—1967
Signal reproducing system with phase cancellation of undesired signal component. Allen J. Trost and Erhard K. Kietz. 42: 551—1967
Signal system optimization in magnetic tape apparatus for processing continuous nonpictorial wideband signals. George N. Goossen and Sidney S. Damron. 42: 556—1967
Sound recording and reproducing apparatus. Robert E. Boyden. 42: 711—1967
Sound recording system. Yoshiro Nakamatsu. 42: 553—1967
Sound reproducing device having a replaceable endless tape cartridge. Jimmie H. Morrison. 42: 556—1967
Spherical transducer for magnetic tape recording. Earl G. Goehl. 42: 711—1967
Synchronizing system for video transducing apparatus utilizing composite information and pilot signals. Erhard K. Kietz, Sidney S. Damron, and John F. Varnell, Jr. 42: 716—1967
System of recording program control signals. Thomas R. Nisbet. 42: 716—1967
Tape guiding and transducing apparatus. Robert F. Pfost. 42: 553—1967
Tape recorder apparatus. Sheldon Lee Pastor. 42: 554—1967
Tape reel cartridge. James T. Boag. 42: 715—1967
Tape transport device with frictional control means. Ben C. Wang, Norman P. Gruczelak, and Thomas W. Lawson. 42: 715—1967
Tape transport drive apparatus. Herbert F. Sanford. 42: 715—1967
Tape transport with concentric coils rotating at different speeds. Donald A. Horstkorta. 42: 552—1967
Tape-winding apparatus. Werner Schiebeler and Peter Renner. 42: 716—1967
Transducer positioning apparatus. Jack K. Willis. 42: 555—1967
Transducing system. Wayne R. Johnson and Richard V. Roelofs. 42: 715—1967
Transducing system. John T. Mullin. 42: 554—1967
Wedge-shaped magnetic transducer. Robert F. Pfost. 42: 556—1967
Wideband frequency modulation systems. Paul E. Drapkin. 42: 555—1967

5.16s Electrostatic Recording and Reproducing

Patents

Wide band recording system. Frederic W. Etcheverry. 42: 558—1967

5.17 Telephones, Telephone Earphones. (See also 5.13.) Intercommunication Systems

Papers

Reliability of auditory threshold determinations using a circumaural-earphone assembly. G. R. C. Atherley, T. I. Hempstock, P. Lord, and J. G. Walker. 42: 199—1967

Abstracts

Experiments on the use of the touch-tone telephone as a communication aid for the deaf. J. R. Nelson. 42: 1190—1967
Use of an adapter ring for calibration of large circumaural earphones. Laura Ann Wilber, John Swindeman, Ann Hogue, and Victor Goodhill. 42: 1148—1967

Patents

Acoustic communication device and toy. Charles E. Pfund and John W. Dawson. 42: 928—1967
Communication system utilizing frequency differential time delay. Emil Hopner. 42: 928—1967
Dynamic ear phone. Donald L. Kliewer. 42: 1128—1967
Ear piece. James M. Knott. 42: 558—1967
Signalling arrangements employing piezoelectric devices. Naomi S. Suloway. 42: 558—1968
Voice-data substation apparatus actuated by tone from central switching office. Robert T. Cleary and Robert V. Burns. 42: 927—1967
Voice encoder. Frederick L. Fox. 42: 928—1967
Voice frequency receiver for detecting out-of-band tone signals. Herbert M. Zydney. 42: 927—1967

5.18 Transducing Principles, Structures and Materials, General. (See also 5.8, 5.9, 5.17, 10.3, 12.3p, 13.7, and 13.11t.)

Papers

Flush-mounted pressure transducer system as spatial and spectral filters. G. Maidanik. 42: 1017—1967
Vibrational displacement and mode-shape measurement by a laser interferometer. H. A. Deferrari, R. A. Darby, and F. A. Andrews. 42: 982—1967

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Methods for performance-testing of electromechanical pressure transducers. P. S. Lederer. 42: 533—1967

Abstracts

Dynamic mechano-electrical cable noise. J. E. Donovan. 42: 1212—1967
Investigation of the vibrational properties of a J9 transducer in water by an optical interferometric technique. J. J. Gilheany and F. A. Andrews. 42: 1212—1967
Measurement of the high pressure acoustic properties of various transducer materials. R. W. Higgs. 42: 1213—1967
Nonlinear distortion in dynamic, direct radiator, loudspeakers. Harry F. Olson. 42: 1212—1967
Sonar transducer calibration in a controlled pressure-temperature environment. C. E. Green and J. R. Roshon. 42: 1188—1967
Transducer element design for an endfire array. Harry B. Miller. 42: 1212—1967
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Wind tunnel study of probes for measuring pressure fluctuations on an ablative hypersonic reentry vehicle. H. H. Heller. 42: 1214—1967

Patents

Acoustic transducer with pressure equalizing cover. Edward I. Moser. 42: 308—1967

Acoustic-electromagnetic device. Henry S. Sommers, Jr. 42: 717—1967
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Electrical energizing circuit for a piezoelectric element. Marcel Clicques. 42: 928—1967
Geophysical borehole apparatus. John H. Malmberg. 42: 309—1967
Moisture-proof carbon microphone. Adolf Adam. 42: 717—1967
Pressure equalizing arrangement for acoustic logging. Edward I. Moser and Gerald S. Baker. 42: 308—1967
Sonic transducer. John F. Cain. 42: 1128—1967
Stress-responsive semiconductor transducers. Mathew E. Sikorski. 42: 928—1967
Transducer. Sidney Golden. 42: 717—1967
Transducer-transformer unit. Samuel M. Bagno. 42: 928—1967
Transistor microphone. Warren P. Mason. 42: 717—1967

5.18d Electrodynamic Transducers

Patents
Magnetic system for electro-dynamic transducers. Heinrich Fanselow. 42: 928—1967

5.18e Electrostatic Transducers

Letters to the Editor
Capacitance microphone for measurement of small attenuation coefficients. R. T. Arnold, J. E. Mackey, and E. L. Meeks. 42: 677—1967

Abstracts
Family of electrostatic sensors for hypervelocity microparticle impact momentum measurement. N. J. Meyer, B. R. Beavers, and J. G. Powell. 42: 1213—1967
Mechanical stability of the diaphragm of an electrostatic loudspeaker. Josef Merhaut. 42: 1212—1967

5.18f Magnetostrictive Transducers

Patents
Magnetostrictive transducers. Frank Dostal. 42: 717—1967
Transducer device. Otto Voegeli. 42: 309—1967

5.18g Electromagnetic Transducers

Patents
Electromagnetic seismic transducer system. Jimmy R. Cole. 42: 1128—1967
Small-sized electroacoustic transducers. Masahiko Uemura and Shigeru Kudo. 42: 1128—1967

5.18p Piezoelectric Transducers, Ferroelectrics

Papers
Anharmonic, thickness-twist overtones of thickness-shear and flexural vibrations of rectangular, *AT*-cut quartz plates. R. D. Mindlin and W. J. Spencer. 42: 1268—1967
Determination of elastic and piezoelectric constants for crystals in class (3m). A. W. Warner, M. Onoe, and G. A. Coquin. 42: 1223—1967
Multiple reflections in a free piezoelectric plate. O. M. Stuetzer. 42: 502—1967
Stress sensitivity of piezoelectric ceramics: Part 1. Sensitivity to compressive stress parallel to the polar axis. Helmut H. A. Krueger. 42: 636—1967

Letters to the Editor
Conversion relations for isotropic and ferroelectric ceramic elasticity formulations. Richard Holland. 42: 1344—1967

Abstracts
Bechmann's number for an inverted mesa structure. J. L. Bleustein. 42: 1178—1967
Small, low-frequency, omnidirectional, broadband hydrophone. Ruell F. Solberg, Jr. and Leonardt F. Kreisle. 42: 1213—1967
Twist overtones of thickness-shear and flexure in *AT*-cut quartz plates with partial electrodes. P. C. Y. Lee and W. J. Spencer. 42: 1178—1967

Patents
Construction of earphones and microphones. James C. Craig and Alexander L. Dvorsky. 42: 717—1967
Piezo-electric transducer. Hans Conrad Sonderegger. 42: 1128—1967
Polarization process for ceramics. James C. King and Neal C. Thomas. 42: 928—1967
Sonic wave generator. Stanley E. Jacke and Henry Biagini. 42: 929—1967
Transducer mounting arrangement. Norman Garver Branson. 42: 929—1967

5.19 Tuning Forks, Frequency Standards, Frequency-Measuring and -Recording Instruments. Time Standards. Chronographs

Patents
Electromagnetic torsional tuning fork. Frank Dostal. 42: 558—1967

5.21 Vibration Devices. Devices for Generating or Damping Vibrations. (See also 12., 12.3, 12.3i, 12.3p, and 12.3v.)

Papers
Acoustical velocity amplifier study. P. J. MacVicar-Whelan. 42: 208—1967
Application of complex-variable theory to the determination of the fundamental frequency of vibrating plates. Paul A. Shahady, Ralph Passarelli, and Patricio A. Laura. 42: 806—1967
Vibrational displacement and mode-shape measurement by a laser interferometer. H. A. Deferrari, R. A. Darby, and F. A. Andrews. 42: 982—1967

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Simple circuit for a tone burst generator. Hideo Sasaki. 42: 531—1967
Sonic test system for nondestructively evaluating composite structures. Ron Botsco. 42: 1348—1967

6 MUSIC AND MUSICAL INSTRUMENTS

6.1 General, Unclassified

Letters to the Editor
Analysis of musical sounds by Fourier transform methods. Eli Metzger. 42: 896—1967

Patents
Musical device. Marvin I. Glass, Gordon A. Barlow, and Burton C. Meyer. **42**: 558—1967

6.2 **Bells, Xylophones. Other Instruments having Rigid Vibrators**

Patents
Drumstick. Anna Marie Gilbert. **42**: 717—1967
Electronic musical instrument. Francois Pierre Maurice Baschet. **42**: 1129—1967
Music box. Marvin I. Glass, Carl Ayala, and Gordon A. Barlow. **42**: 558 (2 patents)—1967
Musical device. William E. Benner. **42**: 1129—1967
Musical instrument having struck vibrating members. Karoly Cser. **42**: 718—1967
Musical instrument stand. John A. Rochon. **42**: 558—1967
Musical melody-producing comb. Franklin E. Wolcott. **42**: 1129—1967

6.3 **Brass Wind Instruments (Lip-Vibrated)**

Papers
Optimum lengths of valve tubes for brass wind instruments. Robert W. Young. **42**: 224—1967
Physical correlates of brass-instrument tones. David Luce and Melville Clark, Jr. **42**: 1232—1967

Patents
Musical instrument mouthpiece. William R. Williams. **42**: 309—1967

6.5 **Pipe Organs**

Papers
Absorption cross section of a pipe organ due to resonant vibration of the pipe walls. A. H. Benade. **42**: 210—1967

Abstracts
Impedance at mouth of organ pipe. S. A. Elder and W. E. Fasnacht. **42**: 1217—1967
Search-tone measurements in blown wind instruments. A. H. Benade and W. W. Worman. **42**: 1967

Patents
Organ pre-set. Joseph A. Hohos. **42**: 309—1967
Pipe organ pressure regulator. Walwin J. Bosche, Jr. **42**: 559—1967
Preselector for the tonal control elements of an organ. Oscar W. Sepp, Jr. **42**: 1129—1967

6.6 **Pianos and Other Keyboard Stringed Instruments**

Patents
Apparatus for piano playing in any key, for writing music, and for transposing music from one key to another. Raymond Henry Wencil. **42**: 309—1967
Bearing bushes. Christian Henry Wehlau. **42**: 309—1967
Foot pedal string bass. Orbra W. Appleton. **42**: 559—1967
Instant piano picture chord course. Dayton Allen. **42**: 560—1967
Keyboard. Paul S. Rosberger. **42**: 559—1967
Keyboard device. Orville T. Wood and Julius E. Underwood, Jr. **42**: 1130—1967
Keyboards and accessories. Harold A. Jewett. **42**: 560—1967
Keyboards and actions. Harold A. Jewett. **42**: 560 (2 patents)—1967
Keys. Rudolph A. Becwar. **42**: 560—1967
Method for casting piano plate. Henry G. Wickham. **42**: 1130—1967
Method of making a piano plate. Henry G. Wickham. **42**: 310—1967
Musical instrument. Robert Thibodeaux. **42**: 561—1967
Musical instrument with audio signal to force translator. Tom Percy. **42**: 559—1967
Piano. Joachim F. Esteva. **42**: 561—1967
Piano action. Wilfrid H. Bendall. **42**: 560—1967
Piano action bushing assembly. Theodore D. Steinway. **42**: 1129—1967
Piano case construction. Edward L. Schroth. **42**: 1129—1967
Piano plates. Robert C. Boehme. **42**: 559—1967
Piano plates. Carl Ultes, Jr. **42**: 559—1967
Piano tonal apparatus. Wilfrid H. Bendall. **42**: 560—1967
Piano tone producing structure. Gustav George Arne Bolin. **42**: 1129—1967
Sharp key cap. Clifford W. Andersen. **42**: 309—1967
Sounding board for stringed musical instrument. Howard Kennedy Graves. **42**: 1129—1967

6.7 **Violin Family. Stringed Instruments, Except Keyboard Type**

Patents
Bridge construction for guitars. Clarence L. Fender. **42**: 561—1967
Electric guitar. Remo Meazzi, Franco Caldironi, and Attilio Oliveri. **42**: 561—1967
Electric guitar incorporating improved electromagnetic pickup assembly and improved circuit means. Clarence L. Fender. **42**: 561—1967
Electrical instrument in which string serves as its own transducer. Jack C. Cookerly and George R. Hall. **42**: 562—1967
Foot operated bass stringed musical instrument. Joseph Lostimolo. **42**: 1363—1967
Gauge for measuring height of strings from fingerboard of stringed musical instruments. Rex A. Conner. **42**: 562—1967
Means for enhancing and reinforcing the tones emitted by a musical instrument having a resonance chamber. John Williams. **42**: 929—1967
Musical instrument and amplifications system. Rundlette K. Palmer. **42**: 561—1967
Musical instrument string having improved anchor means and method of making same. Daniel L. Mari. **42**: 929—1967
Pick for playing stringed musical instruments. Gerald P. Oddo. **42**: 929—1967
Picks for musical instruments with improved grip including with improved tone. Hyman Galetzky. **42**: 1130—1967
Piezoelectric musical pickup arrangement. Frank C. Carman and Lynn Johnson. **42**: 561—1967
Plucking mechanism for musical instrument. Thaddeus A. Koniecki. **42**: 310—1967
Shoulder support for violin and the like. William Walker White. **42**: 562—1967
Slanted finger board for stringed instruments. Obra W. Appleton. **42**: 1130—1967

Stringed musical instrument with piezoelectric transducers. Frank C. Carman and Lynn Johnson. 42: 718—1967

Stringed musical instruments with pickup and damping means between bridge and fingerboard. James Ormston Burns and Gordon Spencer Chandler. 42: 310—1967

Violin bow guide. Glenn U. Phillips. 42: 718—1967

6.9 Electrical Musical Instruments

Patents

Apparatus for producing pedal sounds in electric musical instruments. Shigeaki Mabuchi. 42: 311—1967

Attenuating sound control system for electronic musical instruments. Shigeaki Mabuchi. 42: 564—1967

Automatic reverberation control. Max W. Rogers. 42: 564—1967

Automatic volume control for stringed musical instruments. Graham E. Stobaugh. 42: 565—1967

Continuously rotating selectively operable apparatus for producing vibrato and tremolo. Donald J. Leslie. 42: 312—1967

Dead key eliminator electrical musical instrument. John M. Hanert. 42: 1131—1967

Electrical musical instrument. Walter J. Anderson. 42: 312—1967

Electrical musical instrument. John M. Hanert. 42: 1132—1967

Electrical musical instrument having fingerboard with continuously variable finger tone spacing. Alving S. Hopping. 42: 1363—1967

Electronic musical instrument. Alfred B. Freeman. 42: 1131—1967

Electronic musical instrument. Georges Jenny. 42: 1131—1967

Electronic musical instrument. Georges Jenny. 42: 1133—1967

Electronic musical instrument. Fred B. Maynard. 42: 564—1967

Electronic musical instrument. Richard H. Peterson. 42: 310—1967

Electronic musical instrument. Richard H. Peterson. 42: 562—1967

Electronic musical instrument. Richard H. Peterson. 42: 1130—1967

Electronic musical instrument. Richard H. Peterson. 42: 1133—1967

Electronic musical instrument oscillator. John R. Brand. 42: 562—1967

Electronic musical instrument tone generator having vibrato effect. Michael Graser, Jr. 42: 1131—1967

Electronic musical instrument with fluid pressure actuated volume control. Georges Jenny. 42: 1133—1967

Electronic musical instruments with twin detuning circuits to maintain constant vibrato. Richard H. Peterson and William H. Hass. 42: 563—1967

Electronic organ. Richard H. Peterson. 42: 1132—1967

Electronic organ having tone generators with two different outputs. Howard E. Holman, John R. Brand, and Marvin Korinke. 42: 563—1967

Electronic organ speaker with tremolo effect. Harold H. Hare. 42: 563—1967

Electronic piano having means responsive to the velocity of the action. Jerome Markowitz, Milton F. Nelson, and Edwin H. Strain. 2: 1133—1967

Electronic tremolo unit. Horace N. Rowe. 42: 1132—1967

Harmonica electronic amplification. John B. Roll and John A. Herr. 42: 1363—1967

High frequency electromechanical generator. Jacques Henry-Baudot. 42: 1131—1967

Key action for organs including modular rotary wiping contact switch. Paul A. Klann. 42: 1133—1967

Legato percussion apparatus for electrical musical instruments. John M. Hanert. 42: 565—1967

Multiple use of wave circuits for tone production. Jack C. Cookerly and George R. Hall. 42: 564—1967

Musical and analytical instrument. Lewis Balamuth. 42: 563—1967

Musical device. Richard E. Williams and John S. Gerig. 42: 311—1967

Musical instrument. Herman Birchard Stinson, Jr. 42: 1133—1967

Musical instrument circuit. Walter J. Anderson. 42: 1131—1967

Organ stop mechanism. Walter J. Anderson and Charles W. Welsh. 42: 563—1967

Pedal switching sustain and cancellation circuit for an electronic musical instrument. Howard E. Holman, John R. Brand, and Charles F. Cordier. 42: 1130—1967

Percussion circuit. Stanley Cutler and Solomon Heytow. 42: 1131—1967

Percussion circuit utilizing a single-pole key switch. Paul H. Sharp. 42: 1132—1967

Photoelectric organ. Richard E. Williams. 42: 562—1967

Photoelectric organ. Richard E. Williams. 42: 564—1967

Photoelectric organ. Richard F. Wroblewski. 42: 564—1967

Photoelectric organ and appurtenances. Edward M. Jones. 42: 1133—1967

Preference network. Harold O. Schwartz, Harald E. W. Bode, and John R. Brand. 42: 310—1967

Reeds for application in musical instruments particularly in electronic musical instruments. Adolf Michel. 42: 311—1967

Sine wave divider for electrical musical instruments. Ray B. Schrecongost. 42: 310—1967

Sound reproducing means. Fred A. Weseman. 42: 311—1967

Switching system for electrical organs. Walter Munch, Jr. 42: 1132—1967

Tapered spring reverberation delay line. David A. Bunger. 42: 563—1967

Tone controller. Nobumitsu Hochinomiya. 42: 564—1967

Tone generating means for electrical musical instruments. Benjamin F. Miessner. 42: 311—1967

Tone generator system. Donald K. Harmon. 42: 311—1967

Tone modifier. Melville Clark, Jr. 42: 310—1967

Transducer and mounting for mechanical delay lines. John B. Brombaugh. 42: 311—1967

Transducer assembly for reverberative delay lines. John B. Brombaugh and Edward M. Jones. 42: 1132—1967

Transistor keyer. Lyell J. McDonald. 42: 562—1967

Transistorized percussion circuit for electrical musical instrument. Pau Stiefel. 42: 311—1967

Volume control device for electric musical instruments. Shigeaki Mabuchi. 42: 1131—1967

6.10 Reed Organs. Accordions, Harmonicas

Patents

Doll having moveable head and gravity actuated sounding means. Pierre Henry. **42**: 718—1967

Keyboard for free bass accordion. William F. Kuehl. **42**: 930—1967

Keyboards for musical instruments. Donald J. Winch. **42**: 565—1967

Pressure responsive volume control for electrical instruments. Jack C. Cookerly and George S. Hall. **42**: 1134—1967

Self contained audio amplified musical instrument. Samuel W. Ward. **42**: 930—1967

6.12 Intonation. Vibrato, Musical Scales. Musical Composition

Patents

Keyboard musical instrument. Kunimitsu Mizobe. **42**: 1134—1967

7 NOISE AND NOISE CONTROL

7.1 General, Unclassified

Technical Notes and Research Briefs

Quiet, please! Condors nesting! **42**: 532—1967

7.2 Annoyance. Effects of Noise on Human Beings

Papers

Simple method for identifying acceptable noise exposures. James H. Botsford. **42**: 810—1967

Technical Notes and Research Briefs

Citizens picket to protest noise. **42**: 534—1967

Fun and games on the bus! **42**: 534—1967

NASA asks for quiet jet design. **42**: 1352—1967

Paper company launches hearing protection program. **42**: 1353—1967

SST protest group. **42**: 1352—1967

Washer noisy? Maybe you're just well educated. **42**: 913—1967

Abstracts

Air conditioner equipment. A. E. Meling. **42**: 1177—1967

Category scaling judgment tests on motor vehicle and aircraft noise. Karl S. Pearsons. **42**: 1151—1967

Evaluation of fifteen scaling units for estimating the "annoyance" of jet aircraft flyovers. J. W. Little and J. E. Mabry. **42**: 1215—1967

Laboratory study of jet aircraft noise complaint potential as related to context of the noise. J. E. Mabry and J. W. Little. **42**: 1215—1967

Loudness and annoyance of clicks. Herman R. Silbiger. **42**: 1149—1967

Loudness and annoyance of impulsive office noise. Ernst H. Rothauser, Gunther E. Urbanek, and W. Pachl. **42**: 1149—1967

Noise receiver, the citizen. Robert Alex Baron. **42**: 1177—1967

On the acceptability of aircraft noise heard in the presence of speech. Carl E. Williams, Kenneth N. Stevens, and Mary M. Klatt. **42**: 1215—1967

Predicting hearing impairment from A-weighted sound levels. James H. Botsford. **42**: 1151—1967

Predicting speech interference and annoyance from A-weighted sound levels. James H. Botsford. **42**: 1151—1967

Recent research relative to perceived noise level. R. J. Wells. **42**: 1151—1967

7.4 Community Noise

Technical Notes and Research Briefs

NASA asks for quiet jet design. **42**: 1352—1967

SST protest group. **42**: 1352—1967

Abstracts

Airborne transportation noise—its origin and abatement. John O. Powers. **42**: 1176—1967

Criteria for control of community noise; a candid appraisal of some unresolved questions as seen by one acoustical consultant. Warren E. Blazier, Jr. **42**: 1177—1967

Evaluation of fifteen scaling units for estimating the "annoyance" of jet aircraft flyovers. J. W. Little and J. E. Mabry. **42**: 1215—1967

Industry noise. Kenneth M. Morse. **42**: 1176—1967

Laboratory study of jet aircraft noise complaint potential as related to context of the noise. J. E. Mabry and J. W. Little. **42**: 1215—1967

Noise receiver, the citizen. Robert Alex Baron. **42**: 1177—1967

On the acceptability of aircraft noise heard in the presence of speech. Carl E. Williams, Kenneth N. Stevens, and Mary M. Klatt. **42**: 1215—1967

Surface transportation. G. J. Thiessen. **42**: 1176—1967

7.5 Noise Spectra

Letters to the Editor

Ambient-noise levels in selected shallow water off Miami, Florida. M. Ward Widener. **42**: 904—1967

Abstracts

Cross-spectral density of the noise field on a baffle beneath a plane covering layer. S. Gardner. **42**: 1152—1967

Digital implementation of a noise rating meter and transient analyzer. William W. Lang, George C. Maling, Jr., and William A. Taylor. **42**: 1151—1967

7.6 Noise in Buildings. (See also 2.2.)

Abstracts

Control of air distribution noise in critical auditoriums. R. M. Hoover. **42**: 1170—1967

Interior noise of airline aircraft. Richard B. Stone. **42**: 1215—1967

7.7 Machinery Noise. Mufflers. Noise Silencers

Papers

Acoustical analysis of a multicylinder engine air-induction system. W. M. Wang. **42**: 1244—1967

Technical Notes and Research Briefs

Paper company launches hearing protection program. **42**: 1353—1967

Abstracts

Achieving noise reduction economically. R. E. Jelinek and K. S. Nordby. **42**: 1150—1967

Air conditioner equipment. A. E. Meling. **42**: 1177—1967

Analytical and experimental studies of sound pressures in ducted propellers. Werner Fricke and John R. Bissell. **42**: 1150—1967

Establishment of objective criteria reflecting subjective response to roller bearing noise. R. F. Lucht and R. H. Scanlan. **42**: 1206—1967

Industry noise. Kenneth M. Morse. **42**: 1206—1967

Method of axial testing for roller bearing noise qualities. R. F. Lucht and R. H. Scanlan. **42**: 1205—1967

Noise reduction studies for a multistage axial flow transonic compressor. David Chestnutt. **42**: 1150—1967

Rotor–stator interaction in an axial flow blower. T. F. W. Embleton. **42**: 1150—1967

Theoretical analysis of compressor noise. M. V. Lowson. **42**: 1150—1967

Use of constant-bandwidth narrow-band frequency analysis to pinpoint noise sources in machinery. G. A. Lynch and L. D. Mitchell. **42**: 1205—1967

7.8 Noise Generators (Solid, Liquid, and Gaseous). Sirens

Papers

Calculation of the acoustic power radiated by a monopole in a reverberation chamber. G. C. Maling, Jr. **42**: 859—1967

Patents

Audio exhalation valve for anesthetic nose mask. Leo R. Eimer and Betty Eimer. **42**: 565—1967

Sonar wand. Harold T. Sawyer. **42**: 565—1967

Sound producing mechanism for startling birds. Adolph Zajanc. **42**: 1134—1967

Wind-driven noise-making device. Albert Gould. **42**: 312—1967

7.10 Aerodynamic Noise. Jet Noise

Technical Notes and Research Briefs

SST protest group. **42**: 1352—1967

Abstracts

Airborne transportation noise—its origin and abatement. John O. Powers. **42**: 1176—1967

Category scaling judgment tests on motor vehicle and aircraft noise. Karl S. Pearsons. **42**: 1151—1967

Discriminations among simulated sonic booms. J. W. Little. **42**: 1149—1967

Effect of exhaust temperature on jet noise generation. H. E. Plumblee, Jr. **42**: 1214—1967

Effect of solid boundaries on aerodynamic sound. W. C. Meecham. **42**: 1159—1967

Evaluation of fifteen scaling units for estimating the "annoyance" of jet aircraft flyovers. J. W. Little and J. E. Mabry. **42**: 1215—1967

Experiment to locate the acoustic sources in a high speed jet exhaust stream. R. C. Potter and J. H. Jones. **42**: 1214—1967

Experimental study of aerodynamic sound from a rotating disk. Robert C. Chanaud. **42**: 1151—1967

Factors contributing to the loudness of sonic booms. P. B. Oncley. **42**: 1214—1967

Influence of airspeed on noise generated within various fixed- and rotary-wing aircraft. Donald C. Gasaway. **42**: 1214—1967

Interior noise of airline aircraft. Richard B. Stone. **42**: 1215—1967

Laboratory study of jet aircraft noise complaint potential as related to context of the noise. J. E. Mabry and J. W. Little. **42**: 1215—1967

Noise measurements during take-off and climbout operations of jet transports. W. Latham Copeland. **42**: 1214—1967

On the acceptability of aircraft noise heard in the presence of speech. Carl E. Williams, Kenneth N. Stevens, and Mary M. Klatt. **42**: 1215—1967

Penetration of a sonic boom into water. Richard K. Cook. **42**: 1213—1967

Shock expansion tube as a potentially useful tool for sonic boom simulation. H. E. Dahlke, G. T. Kantarges, and J. J. Van Houten. **42**: 1205—1967

SIC rocket-noise and effect on house trailers. G. Norman Sawyer and L. W. Nybo. **42**: 1205—1967

Total reflection of the sonic boom. C. I. Beitin. **42**: 1214—1967

News

Symposium on Aerodynamic Noise, 20–21 May 1968, Toronto, Canada. **42**: 1106—1967

Errata

Atmospheric effects on sonic booms. [J. Acoust. Soc. Am. **41**, 522(L) (1967)]. Walton L. Howes. **42**: 529—1967

8 STANDARDS

8.1 General, Unclassified

Letters to the Editor

Hertz, the. Hugh M. Fitzpatrick. **42**: 1098—1967

On the Hertz. Robert W. Young. **42**: 1098—1967

Book Reviews

USA Standard Method of Expressing Hearing Aid Performance S3.8–1967. USA Standards Institute. (Reviewed by Laurence Batchelder.) **42**: 1108—1967

USA Standard Preferred Frequencies and Band Numbers for Acoustical Measurements S1.6-1967 (Revision of S1.6-1960). USA Standards Institute. (Reviewed by Laurence Batchelder.) **42**: 1360—1967

News

Activity of the Standards Committees. **42**: 1102—1967

Standard reference pressure for underwater sound. Laurence Batchelder. **42**: 682—1967

Standards Notes. **42**: 275—1967

9 SPEECH COMMUNICATION

9.1 General, Unclassified

Abstracts

Some temporal relationships between speech and hearing. Jim D. McDill and Robert B. Mahaffey. **42**: 1191—1967

Patents

Speech displayer. Raymon S. Drexler. **42**: 930—1967

9.2 Anatomy and Physiology of the Larynx and Vocal Tract

Abstracts

Application of some acoustic measures for the evaluation of laryngeal dysfunction. Yasuo Koike. **42**: 1209—1967

Cineradiographic study of aspiration. Chin-Wu Kim. **42**: 1209—1967

Distribution theory in vocal tract analysis. Jerry A. Selvaggi and Joseph L. De Clerk. **42**: 1192—1967

Dynamic constraints in the variation of subglottal pressure. M. Rothenberg. **42**: 1208—1967

Experimental investigation of pitch change in speech. John Ohala and Minoru Hirano. **42**: 1208—1967

Glottal wave periods in VCV environments. Ronald W. Wendahl and L. Dennis Page. **42**: 1208—1967

Intraesophageal pressure during syllable repetition. Robert E. McGlone. **42**: 1208—1967

Kinematic considerations for deriving laryngeal cartilage motions from laryngoscopic photographs. David J. Broad. **42**: 1208—1967

Observation of the larynx by a fiberscope inserted through the nose. Masayuki Sawashima, Hajime Hirose, and Osamu Fujimura. **42**: 1208—1967

Scaling articulatory behavior: intraoral air pressure. Robert L. Ringel, Arthur S. House, and Allen A. Montgomery. **42**: 1209—1967

Vocal-tract cross-sectional-area measurements with the impedance tube. P. Mermelstein. **42**: 1199—1967

Vocal-tract perturbation functions. John M. Heinz. **42**: 1163—1967

Patents

Artificial larynx. James L. Flanagan. **42**: 930—1967

9.3 Acoustic Analysis of Speech

Papers

Formant frequency regions of Polish vowels. Wojcieck Majewski and Harry Hollien. **42**: 1031—1967

Abstracts

Cryprint categories in newborn-infant cry-sound analysis. H. M. Truby. **42**: 1164—1967

Properties of the instantaneous frequency and its application to speech classification. K. Hiramatsu, D. K. Raley, R. Wackerbarth, and C. L. Coates. **42**: 1182—1967

Real-time colored display of sound spectrogram. Yasuaki Nakano, Takeshi Nakayama, Tsuneji Koshikawa, and Tanetoshi Miura. **42**: 1162—1967

Spectrographic analyses of English consonants. Yukio Takefuta. **42**: 1162—1967

Spectrum analysis of various Asian dialects. S. Joseph Campanella and R. C. Klopfenstein. **42**: 1162—1967

"Voiceprint" mystique. Ralph Vanderslice and Peter Ladefoged. **42**: 1164—1967

9.4 Speech Synthesis

Patents

Electronic formant speech synthesizer. J. L. DeClerk, D. L. Phyfe, and R. A. Fisch. **42**: 930—1967

Method of and apparatus for speech compression and the like. Karl D. Kryter. **42**: 565—1967

Abstracts

Control rule of vocal tract configuration. Akira Ichikawa, Yasuaki Nakano, and Kazuo Nakata. **42**: 1163—1967

Control rule of voice source to improve the naturalness of synthetic speech. Takeshi Nakayama, Akira Ichikawa, and Kazuo Nakata. **42**: 1163—1967

Digital formant synthesizer for speech synthesis studies. Lawrence R. Rabiner. **42**: 1163—1967

New artificial voice and applications. Richard W. Carlisle. **42**: 1193—1967

Pseudospeech synthesis and the phonette. H. M. Truby. **42**: 1163—1967

Rules for word stress analysis: for conversion of print to synthetic speech. Jane H. Gaitenby. **42**: 1182—1967

Vocal-tract perturbation functions. John M. Heinz. **42**: 1163—1967

Vocoder filter design: practical considerations. Roger M. Golden. **42**: 1193—1967

9.5 Perception of Speech and Speechlike Sounds. (See also 4.15.)

Papers

Effects of context on talker identification. Martin A. Young and Richard A. Campbell. **42**: 1250—1967

On the rôle of formant transitions in vowel recognition. B. E. F. Lindblom and M. Studdert-Kennedy. **42**: 830—1967

Abstracts

Discrimination of vowel spectrum in sensorineural hearing impairment. J. M. Pickett and Ellen S. Martin. **42**: 1191—1967

Electronic measurement of nasality: a study of normal-speaking adults. Jack F. Bensen and Frazer D. White. **42**: 1209—1967

Influence of bandwidth and reverberation time upon preference evaluation of speech. G. M. Sessler and and J. E. West. **42**: 1199—1967

Objective procedure for reading VU meters. Harry Levitt and Peter D. Bricker. **42**: 1193—1967

On line analysis of subjective preference data. H. S. Magnuski, G. M. Sessler, and J. E. West. 42: 1199—1967

Speech sounds in atypical environments. Jerry D. Speakman. 42: 1198—1967

Book Reviews

Temporal Sequence in the Perception of Speech. Warren E. Fay. (Reviewed by Katherine S. Harris.) 42: 923—1967

9.6 Measures of Speech Intelligibility, Quality, Information Content

Papers

Binaural release from masking for speech and gain in intelligibility. H. Levitt and L. R. Rabiner. 42: 601—1967

Effects of context on talker identification. Martin A. Young and Richard A. Campbell. 42: 1250—1967

Predicting binaural gain in intelligibility and release from masking for speech. H. Levitt and L. R. Rabiner. 42: 820—1967

Rhyming minimal contrasts: a simplified diagnostic articulation test. John D. Griffiths. 42: 236—1967

Use of a sequential strategy in intelligibility testing. H. Levitt and L. R. Rabiner. 42: 609—1967

Patents

Lisp meter. William C. Dersch. 42: 930—1967

Abstracts

Automatic speaker authentication using speech recognition techniques. W. F. Meeker, T. B. Martin, M. B. Herscher, Douglas Phyfe, and Martin Weinstock. 42: 1182—1967

Coarticulation and the locus theory. Pierre Delattre. 42: 1163—1967

Effects of delayed sidetone on the speech of aphasic, dysarthric, and mentally retarded subjects. Sadanand Singh and Bernard B. Schlanger. 42: 1192—1967

Evaluation of underwater speech communicators. Harry Hollien, Robert F. Coleman, and Carl L. Thompson. 42: 1199—1967

Further studies of the intelligibility of alternated speech. George W. Hughes, Arthur S. House, David P. Goldstein, and John A. Rupf. 42: 1198—1967

Index of criterion for sentence identification tasks. Charles Speaks. 42: 1192—1967

Influence of bandwidth and reverberation time upon preference evaluation of speech. G. M. Sessler and J. E. West. 42: 1199—1967

Intelligibility of individual consonant sounds distorted by infinite peak clipping. Maurice E. Joseph. 42: 1198—1967

Masking of crosstalk by speech and noise. Tapas K. Sen. 42: 1198—1967

On line analysis of subjective preference data. H. S. Magnuski, G. M. Sessler, and J. E. West. 42: 1199—1967

Scaling articulatory behavior: intraoral air pressure. Robert L. Ringel, Arthur S. House, and Allen A. Montgomery. 42: 1209—1967

Selecting an intelligibility test for communication system evaluation. Carl E. Williams and Michael H. L. Hecker. 42: 1198—1967

Speaker-listener dialect error in discrimination testing. Cornelis W. Koutstaal and Martha Hosack. 42: 1182—1967

Speech intelligibility as a function of helium-oxygen breathing mixture and ambient pressure. Harry Hollien and Carl L. Thompson. 42: 1199—1967

Speech sounds in atypical environments. Jerry D. Speakman. 42: 1198—1967

Syntactical versus temporal cues for speaker switching in natural dialogue. Louis J. Gerstman, Stanley Feldstein, and Joseph Jaffe. 42: 1183—1967

9.7 Phonetics, Linguistics, Statistics of Language

Letters to the Editor

Transitions in American English /s/ as cues to the identity of adjacent stop consonants. M. F. Schwartz. 42: 897—1967

Abstracts

Effects of delayed sidetone on the speech of aphasic, dysarthric, and mentally retarded subjects. Sadanand Singh and Bernard B. Schlanger. 42: 1192—1967

Electronic measurement of nasality: a study of normal-speaking adults. Jack F. Bensen and Frazer D. White. 42: 1209—1967

Intonation: accent and emphasis, cadence, and endglide. Ralph Vanderslice. 42: 1181—1967

Intraesophageal pressure during syllable repetition. Robert E. McGlone. 42: 1208—1967

Perception of linguistic boundaries. George W. Hughes, Arthur S. House, and John A. Rupf. 42: 1181—1967

Phonemic confusion in whistled Turkish. Jarvis Bastian and Carol Wall. 42: 1182—1967

Psychoacoustic implications of interspecies communication. Harry M. Truby and John C. Lilly. 42: 1181—1967

Psychophysical reality of the distinctive features of phonology. Dennis H. Klatt. 42: 1181—1967

Spectrographic analyses of English consonants. Yukio Takefuta. 42: 1162—1967

Spectrum analysis of various Asian dialects. S. Joseph Campanella and R. C. Klopfenstein. 42: 1162—1967

Book Reviews

Phonétique et Phonation. A. Moles and B. Vallancien, Editors. (Reviewed by Pierre Delattre.) 42: 1107—1967

News

Phoneme-Grapheme Correspondences to Spelling Improvement. 42: 1354—1967

Truby, Henry M., receives new appointment. 42: 537—1967

9.8 Systems for Speech Transmission. Analysis-Synthesis Telephony, Speech Coding

Papers

Time-domain bandwidth-compression system. W. R. Stover. 42: 348—1967

Letters to the Editor

Comments on "Technique for correcting helium speech distortion" [W. R. Stover, J. Acoust. Soc. Am. 41, 70–74 (1967)]. R. M. Golden. 42: 514—1967

Abstracts

Automatic evaluation of time-varying communication systems. Michael H. L. Hecker, Gottfried von Bismarck, and Carl E. Williams. **42**: 1198—1967

Evalution and optimization of nonlinear quantization characteristics in PCM transmission of speech. Hiroya Fujisaki and Mesanori Kataoka. **42**: 1192—1967

Evalution of underwater speech communicators. Harry Hollien, Robert F. Coleman, and Carl L. Thompson. **42**: 1199—1967

Study of relations among terms used for subjective evaluation of telephone transmission quality. J. P. Duncanson. **42**: 1193—1967

Patents

Amplitude equalizer of speech sound waves. Meguer V. Kalfaian. **42**: 930—1967

Audio typewriter. Richard Kobler. **42**: 930—1967

Electronic conversions of speech. Nathan Gold. **42**: 931—1967

Formant period tracker. Samuel Joseph Campanella and David C. Coulter. **42**: 1363—1967

Means for interpreting complex information such as phonetic sounds. Meguer V. Kalfaian. **42**: 931—1967

Noise indicator circuit. Stephen H. Maybar. **42**: 931—1967

Sonic reading device. Theodore F. Schwartz. **42**: 565—1967

Sound analyzing system. John L. Stewart. **42**: 932—1967

Speech analysis. Cecil H. Coker. **42**: 932—1967

Speech compression system. Harold J. Manley. **42**: 932—1967

Speech synthesizer. John L. Kelley, Jr. **42**: 933—1967

Speech wave analyzer. Cecil H. Coker. **42**: 932—1967

Symmetric peak amplitude equalizer of complex sound waves, without peak wave distortion. Meguer V. Kalfaian. **42**: 930—1967

Synthesis of artificial speech. James L. Flanagan. **42**: 930—1967

Voice-data multiplexing system for transmitting data during pauses in the voice signals. Richard F. J. Filipowsky and Constantine Prisekin. **42**: 931—1967

Voice-data multiplexing system for transmitting data during pauses in the voice signals. Richard F. J. Filipowsky, Constantine Prisekin, and Frank S. Davidson. **42**: 931—1967

9.9 **Instruments for Speech Measurement**

Patents

Nasality meter. William C. Dersch. **42**: 933—1967

Speech analyzing system. Genung L. Clapper. **42**: 933—1967

System for determining consonant formant loci. David C. Coulter. **42**: 933—1967

Wave analyzer. Manfred R. Schroeder. **42**: 933—1967

9.10 **Machine Recognition of Speech**

Papers

Computer recognition of connected speech. D. R. Reddy. **42**: 329—1967

Effects of context on talker identification. Martin A. Young and Richard A. Campbell. **42**: 1250—1967

Abstracts

Automatic speaker authentication using speech recognition techniques. W. F. Meeker, T. B. Martin, M. B. Herscher, Douglas Phyfe, and Martin Weinstock. **42**: 1182—1967

Machine recognition of speech. T. B. Martin, H. J. Zadell, R. B. Cox, and M. B. Herscher, **42**: 1182—1967

Patents

Acoustic apparatus for encoding sound. Harry F. Olson and Herbert Belar. **42**: 565—1967

Adjustable recognition system. Raimo Bakis. **42**: 567—1967

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Voice actuated device. David A. Geddes. **42**: 934—1967

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10 **ULTRASONICS**

10.1 **General Unclassified**

News

Conference on sonic effects. **42**: 1355—1967

1967 Ultrasonics Symposium, Vancouver, Canada. **42**: 281—1967

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10.2 **Physical Effects of Ultrasonic Waves. Optical Diffraction. Ultrasonic Processing**

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Cavitation detection: the use of subharmonics. P. De Santis, D. Sette, and F. Wanderlingh. **42**: 514—1967

Optical imaging of the cross section of a microwave acoustic beam in rutile by Bragg diffraction of a laser beam. Chen S. Tsai and Harold V. Hance. **42**: 1345—1967

Abstracts

Acoustic excitation of nuclear spin resonance in solids. E. H. Gregory. **42**: 1177—1967

Light scattering from thermally excited surface

waves. Robert H. Katyl and Uno Ingard. 42: 1178—1967
Ultrasonic coupling loss. Walter L. Ghering. 42: 1178—1967
Variable angle spectrometer for Brillouin scattering (SBS). C. Leonard O'Connor. 42: 1178—1967

Patents

Atomizer with multi-frequency exciter. William K. Fortman. 42: 935—1967
Electro-acoustic transducer and process for using same for secondary recovery of petroleum from wells. Albert G. Bodine, Jr. 42: 719—1967
Method and apparatus for measuring the thickness of a laminar layer. Henry F. Miserocchi. 42: 312—1967
Method and apparatus for removing moisture from material by sonic or ultrasonic energy in combination with centrifugal energy. Chris Stamos, Philip C. Reeves, and James D. Wender, Jr. 42: 1364—1967
Method of loosening teeth with high-frequency vibrations. Everett D. Mumaw. 42: 1363—1967
Method of operating a fuel cell utilizing ultrasonic mixing means removed from the fuel cell. E. A. Blomgren and Stanislaw J. Szpak. 42: 567—1967
Method of splicing flexible thermoplastic tape using adhesive tape and sonic energy. Robert S. Soloff. 42: 1363—1967
Polymerization process using ultrasonic vibrations. Paul Arthur Woldemar Jurschewitz. 42: 934—1967
Method of ultrasonic drawing of sheet metal. Leo Gross. 42: 718—1967
Sample atomizer. Charles David West. 42: 934—1967
Sonic vibration spot welding. Floyd A. Wyczalek. 42: 1363—1967
Ultrasonic cleaning methods and apparatus. Lewis Balamuth and Claus Kleesattel. 42: 719—1967
Ultrasonic heating method. Lewis Balamuth and Arthur Kuris. 42: 718—1967
Ultrasonic method of lubricating a complex mechanism. Robert A. Carlston and Paul C. Denny. 42: 718—1967
Ultrasonic scissors bonding instrument. Edmund D. Haigler. 42: 567—1967
Ultrasonic testing apparatus for determining the presence or absence of material within a tubular member. James J. Cullen. 42: 312—1967
Ultrasonic wire bonder. Matheus D. Pennings. 42: 312—1967

10.3 Ultrasonic Instruments. (See also 5.18.)

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Spinning ultrasonic drill. 42: 914—1967
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Experimental ultrasonic image system for underwater use. G. L. Sackman, A. F. Barta, G. C. Caswell, and K. G. Robinson. 42: 1186—1967
Face plates for image converters. Henry B. Karplus. 42: 1169—1967
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Image scanner using diode switching. E. E. Suckling and J. R. Hendrickson. 42: 1186—1967
Investigation of electronic image conversion in pulsed operation. R. Pohlman, G. Radig, and E. Schätzer. 42: 1168—1967
Limitations on the performance of ultrasonic delay lines using vitreous silica as the delay medium. A. H. Meitzler, 42: 1178—1967
Nearly spherical lenses. H. R. Feldman and G. E. Lord. 42: 1169—1967
Omnidirectional scanning and relief presentation for ultrasonic visualization of intracranial anatomy. William J. Fry. 42: 1147—1967
Performance limitations on the ultrasound image converter. John E. Jacobs. 42: 1148—1967
Possibility and limitations in sonoholography. P. Greguss. 42: 1186—1967
Real-time display on sound holograms by KD*P modulation of a coherent light source. E. Maron, H. Boutin, and R. K. Mueller. 42: 1169—1967
Reference waves in synthesized acoustical holograms. A. F. Metherell and H. M. A. El-Sum. 42: 1169—1967
Right-angle reflector technique for the ultrasonic examination of material properties. Fred R. Rollins, Jr. and S. L. Levy. 42: 1152—1967
Sensitivity predictions for ultrasonic image tubes. William R. Turner. 42: 1169(A)—1967
Sonographic interpretation—pitfalls and breakthroughs. Lajos I. von Micsky. 42: 1167—1967
Spectrum produced by an ultrasonic resonant cavity. M. A. Breazeale and Ching-tu Chang. 42: 1152—1967
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Ultrasonic encephalography. Charles Grossman. 42: 1167—1967
Ultrasonic image systems for nondestructive testing. Harold Berger. 42: 1185—1967
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Underwater acoustic "television" system. R. W. G. Haslett. 42: 1186—1967
Utilization of the liquid surface levitation effect as a means of ultrasonic image conversion for materials inspection. Otto R. Gericke and Robert C. Grubinskas. 42: 1186—1967

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Apparatus and method for acoustic instrumentation. Charles A. Boyd and Herbert Kartluke. 42: 719—1967

Apparatus for signal reflection ultrasonic flaw testing. Ivan L. Joy. 42: 935—1967
Apparatus for spraying and ultrasonic washing of bottles. Noburo Sasaki, Makio Mishimia, and Yasuo Sugai. 42: 567—1967
Apparatus for identifying bond defects. John G. Martner. 42: 1365—1967
Apparatus to emulsify a liquid in a gas by means of ultrasonic vibrations. Jacques Georges Edmond Broders. 42: 936—1967
Arrangement for the reproduction of ultrasonic oscillations. Cornelis Martinus van der Burgt and Hermanus Stephanus Josephus Pijls. 42: 1365—1967
Cleaning apparatus. Norman G. Branson. 42: 569—1967
Coated piezoelectric analyzer. William H. King, Jr. 42: 1134—1967
Control circuit for resonant sensing device. Norman G. Branson. 42: 720—1967
Devices for generating and delivering mechanical vibrations to a nozzle. William Freeland. 42: 936—1967
Distillation apparatus with ultrasonic frequency agitation. Kenard D. Brown. 42: 569—1967
Dotting ink recorder. Edward C. Mutschler. 42: 1365—1967
Dual transducer probe for ultrasonic testing. R. V. Harris. 42: 720—1967
High-frequency ultrasonic generators. Thomas J. Scarpa. 42: 719—1967
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Ink droplet recorder with plural nozzle-vibrators. Norman L. Stauffer. 42: 1365—1967
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Ultrasonic device for placing materials in suspension. William N. Bennett. 42: 937—1967
Ultrasonic examination apparatus. John Stewart. 42: 1134—1967
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Ultrasonic flow quantity measuring apparatus. Miaki Yamamoto, Yasuaki Arai, and Takeshi Arai. 42: 1134—1967
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Ultrasonic liquid level indicator. John D. Ross, Leslie E. Goodwin, and Thomas R. Herold. 42: 937—1967
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Ultrasonic tire tester. Alfred J. Wysoczanski and Helen Smolen. 42: 1364—1967
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10.4 Gases, Ultrasonic Velocity, Dispersion, Absorption. (See also 11.3.)

Papers

Changes in the vibrational napier (relaxation) time of methane-water-vapor mixtures. Alan A. Monkewicz. 42: 258—1967
Excitation and measurement of acoustic ion waves. G. M. Sessler. 42: 360—1967
High-temperature ultrasonic measurements of rotational relaxation in hydrogen, deuterium, nitrogen, and oxygen. Thomas G. Winter and Garnett L. Hill. 42: 848—1967
Multiple relaxation in gaseous dibromomethane. Gaylord T. Hageseth. 42: 844—1967
Radiative attenuation of sound by CO_2 and H_2O. Thomas G. Kyle. 42: 616—1967
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Vibrational relaxation in nitrogen with water vapor and carbon dioxide contaminants. Malcolm C. Henderson, Raymond Coakley, and Jacques Bry. 42: 1161—1967

10.5 Liquids, Ultrasonic Velocity, Dispersion, Absorption. (See also 13.2 and 13.3.)

Papers

Acoustic absorption and dynamic viscosity in a long-chain polymer. J. L. Hunter and P. R. Derdul. **42**: 1041—1967

Measurement of dynamic shear impedance of low viscosity liquids at ultrasonic frequencies. H. J. McSkimin and P. Andreatch, Jr. **42**: 248—1967

Piezo-optic coefficients of liquids. W. A. Riley and W. R. Klein. **42**: 1258—1967

Letters to the Editor

Negative dispersion and Brillouin scattering. Raymond D. Mountain and T. A. Litovitz. **42**: 516—1967

Sound absorption in mixtures of oxygen and water vapor. R. George Harlow and M. E. Nolan. **42**: 899—1967

Ultrasonic relaxation of hydrate melts: system $Ca(NO_3)_2 4H_2O$. Sergio Petrucci and Fabio Fittipaldi. **42**: 517—1967

Abstracts

Effect of dielectric constant on relaxation frequency of $MgSO_4$ solutions. F. H. Fisher. **42**: 1160—1967

Effect of pressure on the volume viscosity of water. C. M. Davis, J. Jarzynski, and S. Fermi. **42**: 1161—1967

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Measurement of viscoelastic properties of polymers by ultrasonic methods. J. R. Smithson. **42**: 1162—1967

Propagation of shear ultrasonic waves below the relaxation frequency in molten glasses—highly sensitive phase-lock detection system. P. B. Macedo and J. H. Simmons. **42**: 1161—1967

Ultrasonic attenuation measurements at pressures to 10 000 kg/cm^2. M. Paul Hagelberg, Walter H. Johnson, Jr., and Gerald Holton. **42**: 1161—1967

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10.6 Solids, Ultrasonic Velocity, Dispersion, Absorption

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10.10 Ultrasonic Relaxation Processes in Solids, Liquids, and Gases

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11 RADIATION AND SCATTERING

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11.2 Reflection, Refraction, Diffraction, and Interference of Sound Waves

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Echoes from spherical shells in air. Robert Hickling. **42**: 388—1967

Effects of pressure gradients on turbulent-boundary-layer wall-pressure fluctuations. Howard H. Schloemer. **42**: 93—1967

Frequency dependence of amplitude of scattered elastic waves. L. Knopoff and J. A. Hudson. **42**: 18—1967

Multiple scattering of elastic waves by two arbitrary cylinders. N. R. Zitron. **42**: 620—1967

Numerical solution for transient scattering from a hard surface of arbitrary shape—retarded potential technique. K. M. Mitzher. **42**: 391—1967

Reflection and transmission of oblique plane waves at a plane interface between viscoelastic media. Henry F. Cooper, Jr. **42**: 1064—1967

Reverberation under Arctic sea-ice. J. R. Brown and A. R. Milne. **42**: 78—1967

Scattering of acoustic waves by a penetrable sphere with statistically corrugated surface. Yung Ming Chen and Sung Jin Kim. **42**: 1—1967

Scattering from the time-varying surface of the ocean. B. E. Parkins. **42**: 1262—1967

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Scattering of acoustic waves by a penetrable prolate spheroid. I. Liquid prolate spheroid. C. Yeh. **42**: 518—1967

Abstracts

Acoustic ion waves in gas plasmas. G. M. Sessler. **42**: 1160—1967

Acoustic scattering of FM pulses from aluminum spheres in water. E. E. Mikeska and R. Hickling. **42**: 1172—1967

Acoustic scattering by a soft cylinder. T. G. Goldsberry and O. D. Grace. **42**: 1172—1967

Calculation of acoustic fields about arbitrary three-dimensional bodies. John L. Hess. **42**: 1203—1967

Causality in sound scattering from elastic cylinders. H. Überall and P. Uginčius. **42**: 1172—1967

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Evaluation of the Pohlman technique—a historical note. H. E. Van Valkenburg. **42**: 1186—1967

Existence and uniqueness of solutions of integral equations for acoustic radiation and diffraction problems. Ben Noble. **42**: 1203—1967

Experimental investigation of surface wave phenomena by sound pulse techniques. Mary L. Harbold and Bruce N. Steinberg. **42**: 1173—1967

Scattering by coated prolate spheroids. C. Yeh. **42**: 1196—1967

Sound-shadow effect in impulse noise. David C. Hodge and R. Bruce McCommons. **42**: 1149—1967

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Ultrasonic image systems for nondestructive testing. Harold Berger. **42**: 1185—1967

Errata

Axial focusing of sound in the SOFAR channel. [J. Acoust. Soc. Am. **41**, 189 (1967)]. A. O. Williams, Jr. and William Horne. **42**: 270—1967

11.3 Velocity and Attenuation of Sound Waves. (See also 10.4, 10.5, 10.6, 13.2, and 13.3.)

Papers

Acoustic properties of sediments. Loyd D. Hampton. **42**: 882—1967

Focusing of aperiodic waves in a linear viscous medium. H. Searl Dunn and William G. Dove, Jr. **42**: 613—1967

Frequency dependence of amplitude of scattered elastic waves. L. Knopoff and J. A. Hudson. **42**: 18—1967

Radiative attenuation of sound by CO_2 and H_2O. Thomas G. Kyle. **42**: 616—1967

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On the generation and measurement of acoustic fields in low density media. Aswini Kumar Mohanty and Calvin C. Oliver. **42**: 1218—1967

11.4 Waves in Bounded Media

Papers

Acoustical analysis of a multicylinder engine air-induction system. W. M. Wang. **42**: 1244—1967

Asymptotic phase velocities of axisymmetric waves in composite rods. Y. Mengi and H. D. McNiven. **42**: 66—1967

Axisymmetric torsional wave propagation in circular viscoelastic rods. R. M. Wolosewick and S. Raynor. **42**: 417—1967

Elastic constants of filamentary composites with rectangular symmetry. Ernst Behrens. **42**: 367—1967

Sound propagation in lamellar composite materials and averaged elastic constants. Ernst Behrens. **42**: 378—1967

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Some thoughts on Fitzgerald's particle waves. R. M. Wilcox. **42**: 678—1967

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Asymmetries in cylindrical waveguides. G. Z. Forristall and J. D. Ingram. **42**: 1173—1967

Mechanical vibration transmission in the Mariner '69 spacecraft. Terry D. Scharton, Thomas M. Yang, Marc C. Trummel, and Momtaz N. Mansour. **42**: 1204—1967

Out-of-plane motion of a stretched string under forced vibration. D. W. Oplinger. **42**: 1179—1967

11.5 Radiation from Vibrating Objects in Air and Other Gases. Acoustic Impedance. Source of Sound. (See also 5.3, 12.3z, and 13.7.)

Papers

Absorption cross section of a pipe organ due to resonant vibration of the pipe walls. A. H. Benade. **42**: 210—1967

Acoustic nonlinearity of an orifice. Uno Ingard and Hartmut Ising. **42**: 6—1967

Acoustic radiation from a driven, coated infinite plate backed by a parallel infinite baffle. G. Maidanik. **42**: 32—1967

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Calculation of the acoustic power radiated by a monopole in a reverberation chamber. G. C. Maling, Jr. **42**: 859—1967

Calculation of the nearfield pressure induced by vibrating circular plates. George W. Miner, II and Patricio A. Laura. **42**: 1025—1967

Echoes from spherical shells in air. Robert Hickling. **42**: 388—1967

Effects of pressure gradients on turbulent-boundary-layer wall-pressure fluctuations. Howard H. Schloemer. **42**: 93—1967

Evaluation of Robey's first reactance integral for small *ka*. William Thompson, Jr. **42**: 870–1967

Focusing of aperiodic waves in a linear viscous medium. H. Searl Dunn and William G. Dove, Jr. **42**: 613—1967

Mutual acoustic impedance between flexible disks of different sizes in an infinite rigid plane. Kwai-Cheung Chan. **42**: 1060—1967

Scattering of acoustic waves by a penetrable sphere with statistically corrugated surface. Yung Ming Chen and Sung Jin Kim. **42**: 1—1967

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Abstracts

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Acoustical impedance of thin diaphragms. Josef Merhaut. **42**: 1218—1967

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Calculation of acoustic fields about arbitrary three-dimensional bodies. John L. Hess. **42**: 1203—1967

Comparison of methods of farfield prediction. Donald A. Murphy. **42**: 1197—1967

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Model studies on an array of interacting piston radiators. George J. Gruber. **42**: 1167—1967

Nonuniform spherical radiation through thick shells. G. C. K. Yeh and C. T. Molloy. **42**: 1196—1967

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11.6 Wave Propagation in Tubes

Papers

Calculations of eigenvalues for uniform fluid waveguides with complicated cross sections. Patricio A. Laura. **42**: 21—1967

11.7 Mathematical Theory of Wave Propagation. Ray Acoustics. (See also 11.1.5.)

Papers

Acoustic wave generation by entropy discontinuities flowing past an area change. Elizabeth Cuadra. **42**: 725—1967

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Scattering of acoustic waves by a penetrable prolate spheroid. I. Liquid prolate spheroid. C. Yeh. 42: 518—1967

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11.8 **Physical Effects of Sound. (See also 12.11.)**

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Elastic constants of filamentary composites with rectangular symmetry. Ernst Behrens. 42: 367—1967
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11.9 **Sounds in the Atmosphere**

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Echoes from spherical shells in air. Robert Hickling. 42: 388-1967
Radiative damping of sound waves. Robert F. Stein and E. A. Spiegel. 42: 866—1967

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Source size as a theoretical limitation on the determination of wave vectors by detector arrays. Eric Posmentier. 42: 1191—1967

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12 **MECHANICAL VIBRATIONS AND SHOCK. (See also 5., 11., and 16.)**

12.3 **Instruments and Apparatus Relating to Vibration and Shock. (See also 5.3, 5.4, 5.9, and 5.21.)**

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Anharmonic, thickness-twist overtones of thickness-shear and flexural vibrations of rectangular, *AT*-cut quartz plates. R. D. Mindlin and W. J. Spencer. 42: 1268—1967

Normal-mode vibrations of model of centrosymmetric cubic crystal. W. H. Hoppmann II and V. X. Kunukkasseril. **42**: 42—1967
Vibrational displacement and mode-shape measurement by a laser interferometer. H. A. Deferrari, R. A. Darby, and F. A. Andrews. **42**: 982—1967

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Ultrasonic coupling loss. Walter L. Ghering. **42**: 1178—1967

12.3i Vibration Isolators, Attenuators, and Dampers. (See also 2.11 and 5.21.)

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Damped response of an elastically connected double-beam system due to a cyclic moving load. P. G. Kessel and T. F. Raske. **42**: 873—1967
Response and damping of a simple beam with tuned dampers. David I. G. Jones. **42**: 50—1967

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Use of acceleration feedback in active shock and vibration isolation. Peter C. Calcaterra, Dale W. Schubert, and Frederick E. Ezekiel. **42**: 1205—1967

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Noiseless typewriter or the like. Edgar J. Gallagher, Jr. **42**: 1134—1967
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Shock and vibration mounts of the cable support type. James J. Kerley, Jr. **42**: 938—1967
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Vibration dampener. Fred L. Haushalter. **42**: 937—1967
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Vibration isolator for sonic pole driving system. Albert G. Bodine, Jr. **42**: 1135—1967
Vibration and shock isolator. Robert D. Hawkins. **42**: 938—1967
Wing vibration damper. David D. Grimes. **42**: 938—1967

12.3p Vibration Pickups and Indicators. Calibration Equipment and Techniques. (See also 5.9, 5.18, and 13.11t.)

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Acoustic wire strain gauges. John W. Drinkwater. **42**: 939—1967
Fiber optic vibration transducer and analyzer. Alonza J. Davis. **42**: 939—1967
Geophone. Samuel E. Haggard. **42**: 939—1967
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Acoustic spectrometer. John V. Fitzgerald. **42**: 570—1967
Horizontal seismometer. Allan David Beach. **42**: 1135—1967
Powder feed mechanism employing vibrating screen. Walter Proskauer. **42**: 1366—1967
Sonic driving system for bendable lines. Albert G. Bodine, Jr. **42**: 1366—1967
Spark erosion device with controllable electrode spacing. Gerrit Luimes and Cornelis van Osenbruggen. **42**: 1366—1967
Tunable vibration exciter. John M. Morris. **42**: 939—1967
Vibrohammer. Jozef Raniszewski. **42**: 1135—1967

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Multiple reflections in a free piezoelectric plate. O. M. Stuetzer. **42**: 502—1967
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Random vibration of multidegree-of-freedom hysteretic structures. Dean Karnopp and Richard N. Brown. **42**: 54—1967

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Vibration of a rigid circular disc on an infinite isotropic elastic plate. H. S. Paul. **42**: 412—1967

Vibrations of fluid-filled spherical and spheroidal shells. R. Rand and F. DiMaggio. **42**: 1278—1967

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Effect of end conditions on the lateral frequencies of uniform straight columns. Chintakinki L. Amba-Rao. **42**: 900—1967

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Additive property of modal density for a composite structure. F. D. Hart and V. D. Desai. **42**: 1203—1967

Behavior of complex propagation roots in thick and thin cylindrical shells. Edward M. Frymoyer. **42**: 1202—1967

Finite difference analysis of the vibrations of solid cylinders. G. W. McMahon. **42**: 1212—1967

Free vibrations of thin orthotropic oblate spheroidal shells. Leslie E. Penzes. **42**: 1202—1967

Modal energy division in semiinfinite plates. Peter J. Torvik and Jay J. McClatchey. **42**: 1201—1967

On the vibration of an elastic plate on an elastic foundation. David H. Y. Yen and S. C. Tang. **42**: 1202—1967

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12.10 Seismology. Geophysical Prospecting. Seismographs

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Acoustic well logging apparatus having means for transmitting overlapping signals to a surface recording system. Charles B. Vogel. **42**: 940—1967

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Acoustical logging for determining fractures. John C. Wilson. **42**: 1137—1967

Acoustic logging methods and apparatus employing two transmitters and four receivers. Frank P. Kokesh. **42**: 1139—1967

Acoustic logging of subsurface discontinuities. Fontaine C. Armistead. **42**: 1138—1967

Acoustic logging systems. Robert B. Blizard. **42**: 317—1967

Acoustic logging systems. Pierre Majani and Alan V. Rushton. **42**: 943—1967

Acoustic logging systems. Pierre Majani and Alan V. Rushton. **42**: 943—1967

Acoustic method and apparatus for drilling boreholes. Warren B. Brooks. **42**: 571—1967

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Automated system for the serial format recording and parallel format transcribing of repetitive seismic signals. Sammie F. Ritter. 42: 941—1967

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Device for recording sequential trains of vibrations after passage through an intervening medium. Jacques Cholet. 42: 942—1967

Digital seismic recording system. Robert J. Loofbourrow. 42: 316—1967

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Generation and reception of low frequency seismic waves. Kurt Ikrath. 42: 943—1967

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Means and techniques useful in establishing quality of cement bonds in cased boreholes. Warren L. Anderson. 42: 319—1967

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Method and apparatus for acoustical logging wherein the amplitude and frequency of the impulse are determined. John C. Wilson. 42: 1140—1967

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Method and apparatus for continuous wave seismic prospecting. Troy N. Crook, John D. Ball, and Charles L. Hubbard. 42: 319—1967

Method and apparatus for correlating seismic disturbances against previously recorded signals. Nigel Allister Anstey and William Edward Lerwill. 42: 321—1967

Method and apparatus for generating seismic waves. William S. Filler. 42: 322—1967

Method and apparatus for geo-physical prospecting which utilizes both reflected shear and pressure waves. Kenneth H. Waters and Jesse T. Cherry. 42: 1139—1967

Method and apparatus for inducing seismic shear waves in the earth and for seismic surveying. Jesse T. Cherry, Jr., and Kenneth H. Waters. 42: 1136—1967

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Method and apparatus for programmed gain control of a seismic amplifier. Walter B. Ford and Gerald R. Schlechte. 42: 1135—1967

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Method and system for recording repetitive seismic signals. George B. Loper and Frank J. McDonal. 42: 939—1967

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Multiple receiver acoustic well logging. Joseph Zemanek, Jr. 42: 1139—1967
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Particle velocity detector and means for canceling the effects of motional disturbances applied thereto. George M. Pavey, Jr. and Raymond H. Pearson. 42: 1136—1967
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Radio seismic system. Orin C. Montgomery. 42: 941—1967
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Seismic model. Carroll D. McClure. 42: 317—1967
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Seismic system using a slotted disc source producing a binary code. John D. Ball, Frank J. Feagin, and Melvin C. Terry. 42: 944—1967
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Seismic transmission-reception system. Kurt Ikrath. 42: 1138—1967
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Solid array seismic monitor system. Robert A. Broding. 42: 318—1967

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Sonic method for determining borehole vertical deviation. Gerald D. Patterson, Steven G. Williams, and Arthur J. Myers. 42: 944—1967

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12.11 Effect of Sound on Structures. Fatigue. (See also 11.8.)

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Distribution of damage in random fatigue. L. Pulgrano and M. Bernstein. 42: 1205—1967

Matrix analysis of linear structures subject to stationary and correlated random inputs. V. J. Kouskoulas and W. C. Hurty. 42: 1203—1967

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12.12 Effect of Sound on Structures. Fatigue. (See also 11.8.)

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Random vibration of multidegree-of-freedom hysteretic structures. Dean Karnopp and Richard N. Brown. 42: 54—1967

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13 UNDERWATER SOUND

13.1 General Unclassified

Abstracts

Atlantic undersea test and evaluation center (AUTEC). L. L. Jackson, Jr. **42**: 1187—1967

AUTEC acoustic measurement range. R. B. Alspaugh. **42**: 1187—1967

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AUTEC weapons range. William Oneby. **42**: 1187—1967

Calibration of a long-base-line underwater acoustic tracking range. Miles W. McLennan. **42**: 1187—1967

Influence of acoustics on the evolution of the submarine. Walter L. Clearwaters. **42**: 1168—1967

Measurement of the roughness of the ocean bottom. C. S. Clay. **42**: 1183—1967

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13.2 Propagation of Sound in Water. Attenuation. Fluctuation

Papers

Acoustic properties of sediments. Loyd D. Hampton. **42**: 882—1967

Effect of the propagation of internal water waves on underwater sound transmission. Eli Joel Katz. **42**: 831—1967

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Coherence of convergence zone sound. G. R. Lund and R. J. Urick. **42**: 1210—1967

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Fluctuation in underwater acoustic propagation over short depth increments. David C. Whitmarsh and William J. Leiss. **42**: 1210—1967

Geometrical acoustic propagation with frequency dependence. L. P. Solomon and D. K. Y. Ai. **42**: 1155—1967

Luneburg lens and wave theory. C. Allan Boyles. **42**: 1172—1967

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On the existence of focusing zones along the SOFAR axis. Peter Hirsch. **42**: 1154—1967

Representation of SOFAR speed by spherical harmonics. Rockne H. Johnson. **42**: 1155—1967

Simultaneous variation of frequency and angle in acoustic studies. W. M. Barss. **42**: 1173—1967

Sound propagation coherence studies by analysis of the distortion of explosive pulses. R. Laval. **42**: 1209—1967

Study of the effect of plane boundary location in the analysis of characteristic dispersion. F. R. DiNapoli, D. J. DeFanti, and F. H. Middleton. **42**: 1155—1967

20-Hz signals observed in the Central Pacific. John Northrop, W. C. Cummings, and P. O. Thompson. **42**: 1211—1967

Ultrasonic simulation of shallow-water sound propagation. Richard A. Rhodes II and Lyman E. Goodnight III. **42**: 1156—1967

Under-ice acoustic stability: results of a preliminary experiment and a proposed method of measurement. A. R. Milne. **42**: 1210—1967

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Axial focusing of sound in the SOFAR channel. [J. Acoust. Soc. Am. **41**, 189 (1967)]. A. O. Williams, Jr. and William Horne. **42**: 270—1967

13.3 Velocity of Sound in Water. Refraction. Doppler Effect

Papers

Acoustic properties of sediments. Loyd D. Hampton. **42**: 882—1967

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Errata

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13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

Papers

Numerical solution for transient scattering from a hard surface of arbitrary shape—retarded potential technique. K. M. Mitzner. **42**: 391—1967

On optimum baffles. V. Mangulis. **42**: 646—1967

Reflection of circumferential waves from a slit in a thin-walled cylinder. T. G. Goldsberry. **42**: 1298—1967

Scattering of acoustic waves by a penetrable sphere with statistically corrugated surface. Yung Ming Chen and Sung Jin Kim. **42**: 1—1967

Scattering from the time-varying surface of the ocean. B. E. Parkins. **42**: 1262—1967

Using the ocean surface as a reflector for a self-reciprocity calibration of a transducer. Robert B. Patterson. **42**: 653—1967

Letters to the Editor

Acoustic characteristics of Black Moshannon Lake bottom. George A. Ruff. **42**: 524—1967

Circumferential sound pulses on elastic cylinders. R. D. Doolittle, J. V. McNicholas, H. Überall, and P. Uginčius. **42**: 522—1967

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Analysis of short pulse echoes from copper plates. F. L. Weisser, K. J. Diercks, and W. E. Evans. **42**: 1211—1967

Backscattering of sound from the ocean surface. M. V. Brown and R. A. Saenger. **42**: 1185—1967

Backscattering of underwater sound from a wind-driven model sea surface. Herman Medwin, Ernest C. Ball, and John A. Carlson. **42**: 1184—1967

Coherence of ocean bottom reflected acoustic pulses. Salvatore R. Santaniello. **42**: 1184—1967

Effect of sediment shear waves on bottom reflection losses. Halcyon E. Morris. **42**: 1185—1967

Focusing of underwater step-waves near a caustic. Alexander Silbiger. **42**: 1154—1967

Influence of hollow shells on the porosity-sound velocity relationship in some marine sediments. James J. Gallagher. **42**: 1185—1967

Measurement of the roughness of the ocean bottom. C. S. Clay. **42**: 1183—1967

Reflectivity of two bottom areas as measured by total energy reflection coefficients. Francis R. Menotti. **42**: 1183—1967

Simultaneous variation of frequency and angle in acoustic studies. W. M. Barss. **42**: 1172—1967

Surface reflection modulation of an underwater explosion spectrum. Ermine A. Christian. **42**: 1184—1967

Total reflection, phase changes, and caustics. Ivan Tolstoy. **42**: 1154—1967

Transducer pressure-release material for deep submergence applications. Shelby F. Sullivan and Harper John Whitehouse. **42**: 1212—1967

Under-ice acoustic stability: results of a preliminary experiment and a proposed method of measurement. A. R. Milne. **42**: 1210—1967

Underwater acoustic "television" system. R. W. G. Haslett. **42**: 1186—1967

Variability of bottom reflected signals using the deep research vehicle ALVIN. Laurence C. Breaker and Robert S. Winokur. **42**: 1183—1967

13.5 Interference. Diffraction

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Circumferential sound pulses on elastic cylinders. R. D. Doolittle, J. V. McNicholas, H. Überall, and P. Uginčius. **42**: 522—1967

Observation of circumferential waves on solid aluminum cylinders. R. R. Goodman, R. E. Bunney, and S. W. Marshall. **42**: 523—1967

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Coherence of convergence zone sound. G. R. Lund and R. J. Urick. **42**: 1210—1967

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Under-ice acoustic stability: results of a preliminary experiment and a proposed method of measurement. A. R. Milne. **42**: 1210—1967

13.6 Scattering. Reverberation in Water

Papers

Nonlinear oscillations of a bubble. Seng H. Woo and Paul R. Paslay. **42**: 114—1967

Numerical solution for transient scattering from a hard surface of arbitrary shape—retarded potential technique. K. M. Mitzner. **42**: 391—1967

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Abstracts

Acoustic scattering of FM pulses from aluminum spheres in water. E. E. Mikeska and R. Hickling. **42**: 1172—1967

Acoustic scattering by a soft cylinder. T. G. Goldsberry and O. D. Grace. **42**: 1172—1967

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Born approximation in one-dimensional scattering problems. Charles Soodak and Mark Harrison. 42: 1200—1967

Estimate of volume scattering strength from biological samples. Frederic P. Fessenden. 42: 1200—1967

Frequency spectra of forward scattered underwater sound from a traveling sinusoidal surface. William I. Roderick. 42: 1184—1967

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Measurement of the spectral density of ocean reverberation. Arthur S. Westneat. 42: 1166—1967

Ocean surface reverberation mechanisms and their laboratory simulation. H. S. Hayre. 42: 1184—1967

Relationship between deep-water ambient noise and local wind field fluctuations. Lloyd C. Huff. 42: 1201—1967

Reverberation received by a hydrophone separated from an active acoustic source. James H. Prout. 42: 1200—1967

Reverberation resolution using various waveforms. A. Donn Cobb. 42: 1200—1967

Simultaneous variation of frequency and angle in acoustic studies. W. M. Barss. 42: 1172—1967

Statistical theory of reverberation. David Middleton. 42: 1200—1967

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Volume reverberation measurements between Bermuda and Puerto Rico. R. H. Adlington. 42: 1201—1967

Volume scattering at 3 kHz and 12 kHz off Southern California. W. E. Batzler and R. J. Vent. 42: 1201—1967

Volume-scattering observations in Puget Sound and nearby waters. P. H. Moose. 42: 1200—1967

13.7 **Radiation from Objects Vibrating under Water. Acoustical and Mechanical Impedance. (See also 5.3, 11.5, and 12.3z.)**

Papers

Acoustic radiation from a driven, coated infinite plate backed by a parallel infinite baffle. G. Maidanik. 42: 32—1967

Acoustic radiation from a driven infinite plate backed by a parallel infinite baffle. G. Maidanik. 42: 27—1967

Evaluation of Robey's first reactance integral for small *ka*. William Thompson, Jr. 42: 870—1967

Mutual acoustic impedance between flexible disks of different sizes in an infinite rigid plane. Kwai-Cheung Chan. 42: 1060—1967

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Observation of circumferential waves on solid aluminum cylinders. R. R. Goodman, R. E. Bunney, and S. W. Marshall. 42: 523—1967

Abstracts

Numerical approach to pattern synthesis. D. F. Little. 42: 1196—1967

Radiation from a spherical array enclosed by a concentric spherical shell. R. E. Douglass, B. E. Jay, and W. C. Moyer. 42: 1174—1967

13.8 **Sound Generation by Liquid Motion, Bubbles, Turbulence, Splashes. (See also 13.12.)**

Papers

Bubble annihilation in cavitation streamers. Wesley L. Nyborg and David E. Hughes. 42: 891—1967

Nonlinear oscillations of a bubble. Seng H. Woo and Paul R. Paslay. 42: 114—1967

Abstracts

Bubble growth rates and thresholds of rectified diffusion. Anthony Eller. 42: 1152—1967

Gas diffusion by pulsating bubbles in sonic fields. Robert K. Gould. 42: 1153—1967

Some effects of surface roughness on turbulent boundary-layer wall-pressure fluctuations in incompressible pipe flow. Howard H. Schloemer and Emilio C. Recine. 42: 1160—1967

Subharmonics generated by bubbles in sound fields. E. A. Neppiras. 42: 1152—1967

13.9 **Noise in Water, Ship Noise. Flow Noise, Biological Noises.**

Papers

Ambient sea noise in the deep and shallow ocean. Elizabeth M. Arase and T. Arase. 42: 73—1967

On optimum baffles. V. Mangulis. 42: 646—1967

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On measuring the stationarity of ambient sea noise. B. E. Parkins and B. P. Bogert. 42: 1165—1967

Sea noise statistics. Elizabeth M. Arase and T. Arase. 42: 1201—1967

Some applications of meteorology to underwater ambient noise studies in Block Island Sound. Lloyd C. Huff and Robert G. Williams. 42: 1201—1967

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Patents

Stabilized buoy assembly. Ole G. Bakke, David L. Black, and Joseph Giuffre. 42: 1367—1967

13.10 **Underwater Macrosonics. Explosions. Distortion. (See also 14.2 and 12.5.)**

Letters to the Editor

Source levels for deep underwater explosions. Ermine A. Christian. 42: 905—1967

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Nonlinear losses induced in spherical waves. Boyd B. Cary. 42: 88—1967

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Comparative measurements of low-frequency attenuation in the deep ocean employing sinusoidal and explosive sources. William H. Thorp. 42: 1156—1967

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Propagation of unstable finite-amplitude waves. A. L. Van Buren. 42: 1152—1967
Sound propagation coherence studies by analysis of the distortion of explosive pulses. R. Laval. 42: 1209—1967

13.11 Instruments Relating to Underwater Sound

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First acoustic system set for North Sea ship. 42: 533—1967

Abstracts

Small, low-frequency, omnidirectional, broad-band hydrophone. Ruell F. Solberg, Jr. and Leonardt F. Kreisle. 42: 1213—1967

Patents

Acoustic signaling system. Charles G. McIlwraith and Kerry E. Coughlin. 42: 571—1967
Echo sounding apparatus. Alfred Willis Welsh and Kenneth Hussey. 42: 325—1967
Image forming apparatus. Norman F. Fyler. 42: 1142—1967
Mechanical noisemaker. Harvey C. Hayes, Raymond L. Steinberger, Keith H. Odenweller, and George R. Vernon. 42: 1141—1967
Method of and means for repelling sharks. Stanley Barrand. 42: 944—1967
Multipurpose piezoelectric transducer system. Alan O. Sykes. 42: 1141—1967
Multipurpose piezoelectric transducer system. Alan O. Sykes. 42: 1141—1967
Piezoelectric transducer. Alan O. Sykes. 42: 1142—1967
Portable underwater communication unit. Jack Kritz. 42: 944—1967
Receiver for processing a plurality of adjacent closely spaced input signals. Alexander M. Dixon and Reginald J. Cyr. 42: 1141—1967
Sing around velocimeter. Lewis G. Anderson. 42: 1142—1967
Sonar simulator apparatus. Arthur W. Sear. 42: 325—1967
Sonic fishing lure. John H. Godby. 42: 720—1967
Sonic simulator. Frederick B. Cupp and Carl W. Palley. 42: 721—1967
Structure acoustically transparent for compressional waves and acoustically damped for bending or flexual waves. Glenn E. Warnaka. 42: 1367—1967
Transistor underwater telephone system. Vernon W. Kroamer, Herbert L. West, and Francis E. Huff. 42: 571—1967

13.11n Navigational Instruments Using Underwater Sound. Underwater-Listening and Echo-Ranging Devices. Sonar

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Acoustic salmon counter. 42: 1350—1967
New use for sonar. H. E. Edgerton. 42: 532—1967

Abstracts

Acoustic spectrum analysis with coherent optics. George E. Stanford. 42: 1166—1967
Adaptive antenna systems. B. Widrow, P. Mantey, L. Griffiths, and B. Goode. 42: 1175—1967
Adaptive likelihood ratio detector. Theodore G. Birdsall. 42: 1176—1967
Adaptive nonparametric detection. Herbert L. Groginsky. 42: 1176—1967
Analysis of Doppler shift of sonar backscatter. Robert Hartley. 42: 1166—1967
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AUTEC weapons range. William Oneby. 42: 1187—1967
Calibration of a long-base-line underwater acoustic tracking range. Miles W. McLennan. 42: 1187—1967
Comparison of sonar equation and decision theory approaches to passive detection. Philip L. Stocklin. 42: 1164—1967
Effect of ship motions on the design of sonar equipment. G. W. Bradshaw. 42: 1168—1967
Effects of sonar domes on ship performance in smooth water. G. Stuntz. 42: 1168—1967
Effect of spatially uncorrelated noise on the maximum array gain processor. Benjamin F. Cron and Clair J. Becker. 42: 1165—1967
Estimation and detection: a unified approach I. Henry Cox. 42: 1175—1967
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Matched-filter processing of hydrophone arrays. J. L. Flanagan, L. Landgraf, and D. J. McLean. 42: 1165—1967
Motion performance characteristics of ASW ships. Ray Wermter. 42: 1168—1967
Null steering as a realizable process and its relationship to optimum beamforming. Victor C. Anderson. 42: 1175—1967
Optimum transmit and receive beam patterns for sonars operating against reverberation. W. S. Liggett, Jr. and D. A. Pitassi. 42: 1165—1967
Probabilistic model for acoustic sound ranging. Robert P. Lee. 42: 1187—1967
Sonar transducer calibration in a controlled pressure-temperature environment. C. E. Green and J. R. Roshon. 42: 1188—1967
Space-time structure of likelihood ratio sonar receiving systems. James F. Bartram. 42: 1165—1967

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Acoustic beamforming system. Arthur H. Zefting. 42: 1367—1967
Bathymetry. David Epstein and Sidney Epstein. 42: 572—1967
Compass direction indicating system. Samuel Pure. 42: 721—1967
Contour map generator. Harold K. Farr, Paul D. Frelich, and Richard P. Curtis. 42: 325—1967
Deep water radio-acoustic buoy. John B. Hersey and Willard Dow. 42: 325—1967
Digital phase control system for use in producing a variable direction beam from a fixed transmitting array. Barrie Brightman and Uwe A. Pommerening. 42: 1143—1967
Directional filtering of summed arrays. Clarence S. Clay, Jr. and Robert A. Frosch. 42: 572—1967
Directional sonobuoy. Russell I. Mason and Francis E. Buck. 42: 721—1967
Doppler nullification apparatus. Lawrence G. Wright. 42: 1142—1967

Doppler sonar apparatus. Richard O. Rowlands. **42**: 326—1967
Echo ranging and recording apparatus. Joseph D. Richard. **42**: 1143—1967
Echo sounders. Robert Lawton Williamson and John Henry Lindars. **42**: 944—1967
Echo-sounding apparatus with stabilized narrow beam. Peter Roy Hopkin and William Halliday. **42**: 945—1967
Electrical conversion of transient vector signals for recorder application. Beno Barber and Kenneth W. Gross. **42**: 1367—1967
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Multiple-frequency ranging system. John V. Ellison. **42**: 326—1967
Pulse-echo sounder system. Wayne M. Ross and John W. Dudley. **42**: 572—1967
Radiation mapping system. Howard E. Lustig, Arthur L. Rossoff, Paul D. Frelich, and Harold K. Farr. **42**: 325—1967
Side-looking sonar system. Arthur Nelkin and Dale D. Skinner. **42**: 571—1967
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Solid state proportional commutator. Bruce H. Grohe and Charles E. Walker. **42**: 721—1967
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Three-color echo ranging display. Harold J. Doebler. **42**: 572—1967
Three-dimensional compensator for a two-dimensional sonar array. Sidney Baron. **42**: 722—1967
Transmission and recording of signals in echo-sounding apparatus. Victor Charles Buffery and Herbert Martin Jefferys. **42**: 945—1967
Underwater listening aid for submerged personnel. John M. Ide. **42**: 1142—1967
Wedge scan for echo locating system. Harold L. Saxton and Melvin S. Wilson. **42**: 571—1967

13.11t Transducers for Underwater Sound. Transducer Calibration. (See also 5.18.)

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Correlation-detection arrays designed for directional noise fields. Duane H. Tack. **42**: 665—1967
On optimum baffles. V. Mangulis. **42**: 646—1967
Stress sensitivity of piezoelectric ceramics: Part 1. Sensitvity to compressive stress parallel to the polar axis. Helmut H. A. Krueger. **42**: 636—1967
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Directional 420-Hz sound source. Morton Kronengold and William Toulis. **42**: 1187—1967
Experimental results of optical holographic testing of a sonar transducer. Charles F. Jacobson and Ralph M. Grant. **42**: 1218—1967
General evoluation of sonar transducers by average time holographic interferometry. Ralph M. Grant and Charles F. Jacobson. **42**: 1218—1967

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Acoustic apparatus. Harry B. Miller. **42**: 723—1967
Acoustical signal generation by electrical coils deflecting a diaphragm. Ernest L. Clark. **42**: 326—1967
Bender type electroacoustical apparatus. Edwin E. Turner. **42**: 326—1967
High energy acoustic impulse source. William L. Roever. **42**: 326—1967
Broad band acoustic transducer. Daniel E. Andrews, Jr. **42**: 327—1967
Ceramic transducer assembly. Joseph E. Martin and John A. Merrill. **42**: 722—1967
Compliant variable reluctance electroacoustic transducer. Frank R. Abbott. **42**: 1144—1967
Distributed coupling transducer. Winfield J. Trott. **42**: 1144—1967
Electroacoustic transducer. Frank Massa. **42**: 1368—1967
Electroacoustic transducer. Frank Massa. **42**: 1143—1967
Electroacoustic transducer. Frank Massa, Jr. **42**: 945—1967
Electroacoustic transducer. Frank Massa, Jr. **42**: 1143—1967
Electromagnetic transducer for use in deep water. Frank Massa, Jr. **42**: 1143—1967
Electroacoustic transducers for submarine echo sounding. Erhard Ahrens and Karl Feher. **42**: 1144—1967
Extended frequency range pressure balanced hydrophone. Claude C. Sims. **42**: 1368—1967
Flexural transducers. John J. Horan. **42**: 1145—1967
Hydrophone unit. Fred Schloss. **42**: 1369—1967
Intensity meter, particle acceleration type. Fred Schloss. **42**: 945—1967
Marine vibration transducer. Jimmy R. Cole and Frank Clynch. **42**: 1368—1967
Piezoelectric crystal evaluator. Edward T. O'Neill. **42**: 722—1967
Piezoelectric voice range transducer. Claude C. Sims. **42**: 1144—1967
Recirculating delay line phase control system for use in producing a variable direction beam from a fixed transmitting array. Barrie Brightman. **42**: 1145—1967
Seismic energy source. Fretwell G. Crider and Frank A. Angona. **42**: 326—1967
Spring-armature construction for a magnetotractive transducer. Robert T. O'Conner and Benjamin L. Snavely. **42**: 1145—1967
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Transmitting device for sound waves. Jean Cassand, Gerard De Cote, and Jacques Cholet. **42**: 327—1967

13.12 Acoustic Cavitation

Papers
Bubble annihilation in cavitation streamers. Wesley L. Nyborg and David E. Hughes. **42**: 891—1967
Nonlinear losses induced in spherical waves. Boyd B. Cary. **42**: 88—1967

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Cavitation detection: the use of the subharmonics. P. De Santis, D. Sette, and F. Wanderlingh. **42**: 514—1967

Effects of ultrasonic cavitation on trypsin, α-chymotrypsin, and lactate dehydrogenase solutions. R. M. Macleod and F. Dunn. **42**: 527—1967

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Incipient and desinent threshold of visible cavitation in helium II. R. T. Beaubouef, M. L. Chu, A. Mosse, and R. D. Finch. **42**: 1153—1967

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Conference on sonic effects. **42**: 1355—1967

14 AEROACOUSTICS, MACROSONICS

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14.2 Macrosonic Propagation. Distortion of the Wavefront. Shock Waves. Blast Waves. Supersonic Boom

Papers

Focusing of aperiodic waves in a linear viscous medium. H. Searl Dunn and William G. Dove, Jr. **42**: 613—1967

Nonlinear losses induced in spherical waves. Boyd B. Cary. **42**: 88—1967

Abstracts

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14.4 Radiation Pressure. (See also 5.14.)

Papers

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14.6 Interaction of Fluid Motion and Sound

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14.8 Aerothermoacoustics

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15 ACOUSTIC SIGNAL PROCESSING

15.1 General, Unclassified

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15.2 Statistical Theory of Signals

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Abstracts
Acoustic spectrum analysis with coherent optics. George E. Stanford. 42: 1166—1967
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15.3 Space–Time Processing Methods. Automatic Recognition

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Correlation-detection arrays designed for directional noise fields. Duane H. Tack. 42: 665—1967
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15.5 Instrumentation

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16 BIOACOUSTICS

16.1 General, Unclassified

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16.2 Acoustic Characteristics of Biological Materials. Tissues. Microstructures from Macromolecular Species to Cellular Level

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16.5 Use of Acoustic Energy (with or without Other Forms of Energy) in Studies of Structure and Function of Biological Systems

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Evaluation of intensity-modulated recording for ultrasonic diagnosis. John M. Reid. 42: 1147—1967

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16.6 **Sound Generation and Detection by Animals**

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16.7 **Role of Acoustic Energy in the Integrated Behavior of Animals**

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16.8 **Medical Diagnosis with Acoustics**

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16.9 **Medical Use of Ultrasonics for Tissue Modification (Permanent and Temporary)**

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Ultrasonic therapeutic device with recording apparatus. George A. D. Gordon. 42: 1369—1967